APR 23 1917
UNIV. OF MICH.

THE BOSTON Medical and Surgical JOURNAL

OFFICIAL ORGAN OF THE MASSACHUSETTS MEDICAL SOCIETY AND OF THE NEW ENGLAND SURGICAL SOCIETY

VOL. CLXXVI
No. 16

THURSDAY, APRIL 19, 1917

Single Copies 15 Cents
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Therapeutic and Preventive Medicine.

THE TREATMENT OF PERNICIOUS ANEMIA.

BY RALPH C. LARRABEE, M.D., BOSTON.

Two facts make it difficult to judge the value of any given method of treatment in pernicious anemia; first, the indefiniteness of the diagnosis and, second, the tendency of the disease to undergo remissions.

Taking up the first of these points;—there should be no particular difficulty in recognizing the characteristic blood-picture. Atypical findings are probably no commoner than are borderline diagnoses in other conditions. Nevertheless there seems to be a certain amount of confusion as to the points of difference between the blood of pernicious anemia and that of the benign or secondary forms, and any reported series of cases will stand close inspection in this regard. Difficulty also arises from the fact that the blood-picture is not pathognomonic. It is well known that infection with Bothriocephalus latus may give rise to an anemia not distinguishable hematologically from the ordinary cryptogenetic "pernicious" form. I have seen one such case in Boston. I have seen the pernicious blood-picture in syphilis, in cirrhosis of the liver, in lead-poisoning and in a small cancer of the intestine. A very suggestive picture is sometimes found a few days after a severe hemorrhage. This occurs frequently enough to demand that before the diagnosis of pernicious anemia is definitely made, every case should be thoroughly studied for evidences of a causative condition. The Wassermann reaction should always be done and the stools should be examined microscopically for parasites and chemically for blood. Never make the diagnosis on the blood alone. The only chance of permanent relief in apparent pernicious anemia is the discovery of a remediable cause.

The second fact which renders difficult an estimation of the value of treatment in this disease is its proneness to undergo remissions—periods during which the patient is much relieved, or even apparently well. This fact is perfectly well known to all students of the disease and yet we see, again and again, cases reported as "apparently cured" or even as "cured" without qualification, two or three months after some new method of treatment. As remissions lasting over a year are common under any form of treatment, the absurdity of such words is obvious.

If we have in mind less radical results than permanent cure we can estimate the value of treatment on the basis of its efficacy in bringing about remissions. If a given line of treatment will bring about remissions in a strikingly large proportion of cases, or if remissions so produced are strikingly long, it has justified itself.

In order that new methods may be based on these criteria, we must know the frequency and duration of spontaneous remissions or of those occurring under old and conservative medical methods. Cabot[1] has studied 1200 cases, amongst which there was a history of remissions in about three-fourths (77%) of those where the

data were sufficient for judgment. As to the duration of these remissions, there were more cases in the nine months to one year group than in any other, though the average would appear to be about seven months.

My own experience is probably in no way exceptional. Excluding those of doubtful diagnosis, I have seen 69 cases, concerning which my notes are adequate in 52. Thirty-six (69%) of the latter had one or more periods of marked improvement in symptons, with a rise in hemoglobin of 25% or more.

The duration of the remissions in 28 instances where my notes are complete, from the beginning of the remission to the relapse which ended it, averaged 9 months. There are 4 cases still in remissions, which have lasted 5, 7, 40, and 47 months respectively, averaging 25 months. If these are included in the above figures it will be seen that the average rises to 11 months. Several cases drifted out of sight while in remissions, which is, of course, more apt to happen in cases with long remissions than in those with short ones. Hence, the average duration of the remission in these cases will probably be little less than a year.

Three cases, still living in prolonged remissions, deserve special mention in comparing these results with those of newer methods of treatment.

J. F., on July 31, 1913, had 869,000 red corpuscles, hemoglobin 30 per cent., volume index 1.24, a few megaloblasts. On October 20, 1913, the hemoglobin was 90 per cent. There has been no relapse to date, 3 years, 4 months, from the beginning of the remission.

M. E. D., on January 27, 1913, had 672,000 red cells, hemoglobin 20 per cent., volume index 1.8, very numerous blasts, mostly megaloblasts. Improvement began soon after and has persisted to date, almost 4 years.

M. W. H. has been followed since May 2, 1908, when he had 1,914,000 red corpuscles, 45 per cent. of hemoglobin, a volume index of 1.13, and a moderate number of blasts, mostly megaloblasts. A remission began at once and lasted 2½ years, when he had a brief relapse, followed by a second remission. Another relapse occurred in the summer of 1911, followed by a remission which still persists,—5½ years. This approaches the limit of six years set by Cabot as the criterion of permanent recovery, and I have therefore omitted the case in estimating the average duration of remissions.

Of Cabot's 1200 collected cases, there were in 1908, six that had remained well for this period. In 1915 this figure had dropped to three, yet Cabot continues, in precisely the same words, to consider that a remission of 6 years indicates permanent recovery!

It is safe to say, then, that pernicious anemia, treated by old-fashioned medical methods, will show remissions in two-thirds of the cases, and that their average duration will be about a year. Any new line of treatment that fails to give such results is no improvement on the older, conservative methods.

ARSENIC.

The use of arsenic in pernicious anemia is at a disadvantage in comparison with such methods as transfusion and splenectomy because it is so old that its limitations are thoroughly understood. A certain efficacy is generally admitted. Many patients promptly improve under its use and it helps in bringing about remissions. Of course, relapses, ultimately fatal, practically always occur. Its method of action is not clear. The older theory of marrow stimulation seems to be giving way to the view, advanced by Gunn and Feltham[2], that it makes the red corpuscles more resistant to hemolytic agencies. That the addition of minute amounts of arsenic to suspensions of blood corpuscles makes them more resistant to hypotonic salt solutions is doubtless true. Hill[3] has demonstrated that injections of salvarsan have a definite inhibitory action on hemolysis by hypotonic salt solutions. These experiments are, of course, highly artificial and it is unsafe to conclude that arsenic increases the resistance to the destructive agencies of pernicious anemia. So far as I am aware, the influence of arsenic on urobilin excretion has not been demonstrated.

As to methods of administration, the continuous use of Fowler's solution of potassium arsenite by mouth in slowly increasing doses is doubtless the favorite. After this solution has once been pushed to the point of intolerance, it is often hard to resume it subsequently. Under these conditions, the official solution of sodium arsenate, which differs from Fowler's solution chiefly in not containing lavender, is usually better tolerated. I have never seen a patient unable to take arsenic by mouth. If such cases arise it may be given subcutaneously in several forms.

Salvarsan has been used with varying results. Bramhall[4] and Boggs[5] have each reported series of cases in which its use was followed by prompt remission. Others have failed to get favorable results. Where the pernicious blood-picture is a manifestation of syphilis, even if the diagnosis is made exclusively on the Wassermann reaction, salvarsan may, and probably should, be used. But in ordinary, non-syphilitic cases, there is no reason to suppose that pernicious anemia is dependent upon an organism capable of destruction by arsenic. We wish to influence metabolism, or to protect certain cells. In either case, sustained action is wanted, not a maximum bactericidal effect. Hence it would seem that in ordinary cases, the older methods of continuous administration by mouth are to be preferred—at least on theoretical grounds. Bramhall[4] prefers the intramuscular administration of salvarsan rather than the intravenous method for this reason. From my own quite limited experience, I agree with him that the reactions following salvarsan are likely to be more severe than in syphilis.

Iron is not as a rule indicated in pernicious anemia. The tissues are commonly loaded with

iron-bearing pigment and it is hard to believe that the addition of a few grains more can possibly be helpful. Yet there are exceptions. Sometimes when the anemia is rapidly improving there is a halt in the increase in hemoglobin, the red cells continuing to rise. The color index falls and the blood-picture approaches that of benign anemia. I have in mind one young woman in this condition where the administration of ferrous carbonate was followed by a prompt rise in hemoglobin.

DIET.

Opinions as to the importance of dietetic measures in pernicious anemia vary greatly, as the most cursory study of the literature will show. On the whole, the attitude of the best clinicians is skeptical and their experience discouraging.

There has long been a suspicion that the toxic substance that destroys the red corpuscles is formed in the intestine, probably as a result of the putrefaction of proteins. There is evidence that such putrefaction may be increased in pernicious anemia[6], and bodies have actually been isolated from nitrogenous material undergoing putrefaction like that occurring in the bowel, which cause a suggestive type of anemia when injected into animals[7]. Of course, the intestinal canal contains poisonous protein substances, as well as substances capable of becoming so after sensitization[8]. But the body is ordinarily amply protected against them. It is a long way from the demonstration that hemolytic substances exist in the bowel to the proof that these substances are actually the cause of the hemolysis in pernicious anemia.

In addition to the above considerations, there are several facts which seem to show that conditions in the alimentary tract have important relationships to the disease. Histologic changes in the buccal, gastric and intestinal mucosa have long been recognized. The resulting achylia gastrica is perhaps not the only respect in which the digestive secretions are impaired. Nearly all patients have digestive disturbances, sometimes of alarming severity and persistence. Attacks of diarrhoea or vomiting often precede or accompany the sudden characteristic changes in the degree of anemia. Schmidt,[9] who is a student of intestinal diseases rather than a hematologist, notes that disorders of intestinal digestion often precede by many years the development of pernicious anemia, and that more or less anemia is frequently present in all forms of chronic intestinal dyspepsia. In spite of statement in the text-books to the contrary, many patients show marked evidences of mal-nutrition. Cabot's[10] figures show that there is considerable loss of flesh in about 40%. These facts would seem to warrant careful consideration of the alimentary tract.

In planning the diet, then, one must bear in mind three factors;—the excessive putrefaction of proteins, the occurrence of intestinal indigestion, and the frequency of mal-nutrition.

The first indication is met by limiting the protein intake to about 60 or 70 grammes daily. I usually give part of the protein in the form of buttermilk—not only for the rather problematical value of the lactic acid bacilli in limiting the growth of putrefactive organisms, but also because the casein in buttermilk is already coagulated in a fine and easily digested curd. Remembering the fact that gastric achylia is the rule, meat, if it is given, must be fresh, well cooked and finely chewed, or if the teeth are in bad condition, finely chopped. It must be tender and free from connective tissue, the latter being digested only in the stomach, and only in the presence of hydrochloric acid. The diet should not contain much indigestible residue. I always give hydrochloric acid in full doses, as well as bitters and stomachics, and I allow a judicious use of spices, sauces and appetizers.

The intestinal indigestion is best met by the use of a rationally balanced diet and the avoidance of substances which leave a considerable residue. I have attempted in some cases to follow the indications given by frequent examinations of the stools after the Schmidt test-diet, but the information thus obtained has not been valuable.

In carrying out these restrictive methods, one must remember the tendency to mal-nutrition and avoid too great stringency. Hard and fast rules should not be laid down. It is often better to make the directions as general as possible, even at the risk of indefiniteness. Let the patient follow his own desires so far as possible, but have careful daily records of the food made. These diets can be analyzed approximately, with especial attention to the proteins and total caloric value, and any excesses or deficiencies remedied. The diet-charts devised by Dr. Arnold[11], will be found useful in this connection. His methods for the approximate regulation of proteins, though designed primarily for nephritics, will, when once mastered by the patient, enable him to satisfy his natural taste for variety while keeping the quantitative adjustments near enough the desired point for all practical purposes. One must individualize, however, and there are cases in which all restrictions must be cast aside in the effort to get in enough food.

Grawitz[12] and others advise regular lavage of the stomach and colon. My patients, however, will seldom tolerate continuous stomach washing and I have never been able to carry it out regularly. Colonic lavage is more successful, and daily, copious, high enemas have seemed to me, in several instances, to be the measure which has finally arrested a relapse and led to the establishment of a remission. Several cases have been reported by surgeons who have done cecostomy or appendicostomy, followed by through

and through washing, with excellent results. So far as I know, such operations have not been done in this community and late results are lacking.

I have no figures to offer showing the results of treatment along these lines. I can only say that some of the old feeling of helplessness in the presence of a patient who is losing ground day by day has been replaced by a certain sense of control. One of my patients was of the sort, so frequently seen, who followed advice faithfuly only so long as he felt ill. As soon as he reached a certain stage of improvement, nothing would hold him to the paths of therapeutic righteousness. He continued his arsenic but forgot all else and disappeared from view. When he relapsed, he returned to the fold. No less than five times he was "apparently cured" by a brief course of dietetic regulation and colonic lavage. Finally, the inevitable relapse occurred which could not be controlled. Nothing can be claimed of these measures except that they help for a while in bringing about remissions.

GENERAL MANAGEMENT.

General hygienic management is of great importance. During relapses, especially when the anemia is on the increase, patients should be kept in bed, and should stay there until remission is well under way. If possible, they should not return to work even if the blood becomes in all respects normal. They should avoid overtaxing the strength in any way. They should not be advised to "take plenty of exercise in the open air." Out-door treatment as we advise it in convalescents from tuberculosis is not for them. They need fresh air, but do not stand cold well and should not be exposed to the full rigors of a New England winter. They should lead the "simple life," not the "strenuous life."

Emotional stress and strain is fully as undesirable as excess of physical activity. Emotional shock may not only be the precursor of a serious remission but, if one takes his histories carefully, he will find that the onset of the disease not infrequently dates from some shocking emotional experience—such, for example, as the death of a husband or wife or a business failure. In one case, a woman, previously in good health, was involved in a railroad accident and witnessed all its horrors. As a result of the mental shock, rather than any serious physical injury, she was confined to the bed and did not recover her color or strength. Some months later she was found to have pernicious anemia from which she ultimately died. Such investigations as those of Cannon[13] on the physiology of the emotions and their effects on the ductless glands and other organs strengthens my view as to the part which emotional stress might play in determining the onset of an exacerbation or even in acting as an exciting cause in a susceptible person. For, of course, such cases as the one mentioned above must possess an unusual degree of susceptibility, or even have the disease in an early or latent stage. Even in the case of a person already having the disease in a frankly advanced stage, we cannot say why or how emotional shock can have the least influence, any more than we can say why or how it can unfavorably influence cardiac disease or diabetes. But it surely does so, and we ought to guard the patient, so far as is possible, against such influences.

SPLENECTOMY.

At the present time, discussion of the treatment of pernicious anemia concerns largely the question of splenectomy. Although the word "hypersplenism" is frequently used in this connection, it is not to be supposed that the primary and sole site of the causative factor is the spleen. It is pretty generally admitted that some hemolytic agent or agency exists outside of the spleen, but that the spleen supplies some important cog in the machinery which destroys red corpuscles. Splenectomy is not presumed to eradicate the hemolytic agents, but only to remove one of the principal instruments with which they work[14].

A perfectly clear explanation of how removal of the spleen leads to improvement is at present lacking. There can be no doubt that there is a decrease in the excessive destruction of red corpuscles upon which the anemia depends, for in successful cases, there is a corresponding decrease in the excessive excretion of urobilin, a derivative of bile pigment, which is, in turn, derived from hemoglobin[15 16 17]. There is usually found also increased resistance of the red corpuscles to hemolysis by hypotonic salt solutions, though results are somewhat confusing, and too much importance should not be given to such highly artificial experiments as these[18 19]. Some investigators find an increase in antihemolytic substances—neutral fats and cholesterin. There is, on the other hand, evidence of increased blood-formation, in the increase of nucleated and reticulated red cells, Howell-Folly bodies, platelets and leucocytes. These are presumed to indicate either that the operation stimulates the bone-marrow or that some inhibitory function of the spleen has been removed[20].

Eppinger[15], who is largely responsible for the introduction of splenectomy in pernicious anemia, believes that the anemia is a direct result of structural changes in the smaller vessels of the spleen. The consequent obstruction to the passage of blood through certain portions of the capillary circulation causes the corpuscles to leave the capillary vessels in abnormal numbers and come into close contact with certain cells in the pulp, whose action results in their destruction. He thus compares splenectomy to the ligation of a continuously bleeding artery. Relapses after splenectomy are accounted for by the development of hemolymph nodes which take up the spleen's function. Presumably, they are subject to the same circulatory obstructive changes as the spleen itself—the result of the same generalized cause. Eppinger's theory is

based on Weidenreich's studies of the normal histology of the spleen. It is not, so far as I am aware, based upon definite microscopical findings in spleens from pernicious anemia subjects, and is to be regarded merely as a working hypothesis.

From clinical evidence it is safe to say that early improvement frequently follows splenectomy—perhaps more often than any other known therapeutic procedure. Giffin[21] states that about four cases out of five will have remissions after splenectomy. Krumbhaar[22] has collected 153 cases from the literature and finds that remissions occurred in about two out of three (64%). The results in the smaller series of Lee, Minot and Vincent[20] were about the same. While two cases out of three will have remissions under medical treatment, it must be remembered that this figure includes *all* remissions, spontaneous and induced, occurring at any time in the course of the disease, and there is probably no other method of treatment which will be promptly and definitely followed by improvement in anything like this proportion. On the other hand there is no evidence warranting the use of the word "cure" in this connection. The patients improve slowly after operation, the blood often showing less change than the general condition. But even though they become clinically well the blood-picture continues to be that of pernicious anemia.

As to the duration of remissions, Krumbhaar[22] finds the results after splenectomy to compare favorably, in cases which survive operation, with Cabot's[1] figures for cases medically treated. When the post-operative deaths were included, however, the average duration of life was about the same. The operation is, of course, too young to permit such comparisons to be of much value at the present time. Probably some splenectomized patients will remain well for years, just as they have under medical treatment. Some of these will similarly be regarded by the optimistic as "cured" and by the pessimistic as examples of the fallibility of diagnosis. Nearly all may be expected after some months to relapse and die.

The operative mortality will probably be, in cases operated in remission, between 5 and 10% —not high even for a palliative operation. Unfavorable cases will, of course, give a much higher figure. Krumbhaar's 153 collected cases gave a mortality slightly below 20%, within six weeks of operation.

The evidence at present points to a limited value for splenectomy in pernicious anemia. On the one hand, if it is to be done as a last resort, when other means have failed, and the patient is in poor condition, the mortality will be high and the chances of benefit small. On the other hand, a palliative operation in a remission is an absurdity—unless, indeed, the remissions after splenectomy prove to be decidedly longer and more complete than those occurring under medical treatment. I believe that splenectomy has its place in cases which have relapsed under medical treatment and where transfusion fails to initiate progressive, continued improvement, but does bring the patient temporarily up to a point where operation can be done with reasonable chances of success.

TRANSFUSION.

Transfusion has a perfectly definite place in the treatment of pernicious anemia. On theoretical grounds it might be expected to give a prompt increase in hemoglobin and red corpuscles, but considering the rapidity with which blood-cells are being destroyed, this improvement should be very brief. In other words, assume that in a given case the progress of the anemia is represented by a downward sloping line. Transfusion would produce a sharp upcurve, which, if the ratio of blood production to blood destruction remained unchanged, would be followed by a downward sloping line parallel to the original one. This seems to occur in some cases. In others, the balance between production and destruction is upset in a favorable way so that the line continues to slope upwards, approaching and even reaching the normal. In other words, transfusion may initiate a remission.

My own experience consists of but eight transfusions, in six patients. Three were done by the direct arm to arm method, and five by Kimpton's tubes[23]. In two instances there was no benefit whatever, one apparently receiving little or no blood, and the other dying within a few days from pneumonia, present before operation. In one, the downward course was resumed in a few days. In three, there was no progressive remission after transfusion, but the immediate gain was maintained for five weeks, two months and three months respectively. In the remaining two, the immediate gain was followed by true progressive remissions, which in one lasted 11 months and in the other still persists after seven months.

It is today scarcely necessary to say that such methods as that of Kimpton[23] are greatly to be preferred to the older, direct, arm to arm anastomosis. Personally, I should not be willing to supply blood to a case of pernicious anemia by the latter method nor shall I ever again ask another person to do it. There is too much likelihood of sepsis and it is taking too many chances with the unknown etiology of the disease. Also if the most harrowing hour I ever spent means anything, it is not without danger to the donor. My last five transfusions were done by Dr. Kimpton without the slightest ill effect upon donor or recipient.

CONCLUSION.

It is still unfortunately true that we do not know the cause of pernicious anemia and that we must still regard it as invariably fatal. We have learned much concerning its patho-

genesis. We can by various methods give its victims a small measure of relief and a little longer lease of life. There is no one measure or method of treatment that is always indicated in every case. We must, at any moment, choose for the case in hand the means best adapted to meet the indications of the moment. So far as we can speak of a systematic treatment, it is in the writer's opinion something as follows:—

Every case should receive arsenic, best administered continuously by the mouth. If the Wassermann reaction is positive or if there is other evidence of syphilis, salvarsan should be used. Iron should seldom be given except during recovery from relapses, where the increase in red corpuscles outstrips the increase in hemoglobin and the blood-picture approaches that of benign anemia. The diet should always be carefully regulated with a view to controlling protein putrefaction and intestinal indigestion, and preserving the nutrition. Hydrochloric acid and other aids to gastric digestion should be used freely. When the anemia is rapidly increasing the careful use of catharsis and regular and thorough lavage of the colon and perhaps also of the stomach is in order. If the anemia still progresses, and especially in hemorrhagic and aplastic states, transfusion, best by Kimpton's tubes, should be done. If one or more transfusions are not followed by remission, it is justifiable to remove the spleen.

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WILLIAM W. BURNETT, M. D., of Wrentham, Mass., died on February 18 of heart disease while returning from a night call in an adjoining town. Dr. Burnett was born in New York City Nov. 9, 1848. He graduated from the New York Homeopathic Medical College in 1870, practiced medicine in that city, in Freehold, N.Y., in Washington, D. C., and in Amherst, Mass. He had been located in Wrentham for about twenty years. He was a member of the Washington Medical Society and the American Institute of Homeopathy. A widow and two children survive him.

Original Articles.

RETROVERSION OF THE UTERUS: ITS ETIOLOGY AND RATIONAL TREATMENT.*

BY JOHN T. WILLIAMS, M.D., F.A.C.S., BOSTON,

Assistant in Gynecology at Harvard University; Third Assistant Visiting Surgeon for Diseases of Women, Boston City Hospital; Assistant Surgeon, Gynecological Department, Boston Dispensary.

RETROVERSION of the uterus and its treatment, operative and non-operative, have long constituted a fertile field for the ingenuity of the surgeon. Without taking note of the wide variety of mechanical devices for the support of the uterus, Meeker,[1] of New York, is authority for the statement that over eighty different operations for retroversion have been devised. According to the same writer, 131 papers on posterior displacements of the uterus were published during the year 1913 alone. This large amount of literature represents a wide divergence of opinion on numerous points, and the object of this paper is to try to correlate and reconcile as far as possible these differing ideas with each other and with what the writer believes to be the truth.

Up to about 1895, retroversion was considered a clinical entity, with a symptomatology, pathology, and treatment distinct from and unrelated to, other conditions. In that year, Theilhauber,[2] before the VII Congress der Deutscher Gesellschaft für Gynakologie, advanced the opinion that the symptoms which had been ascribed to retroversion—backache, abdominal pain, hemorrhage, leucorrhea, bladder disturbance, nervousness, dysmenorrhea and sterility—were in reality due to other conditions associated with the retroversion, of which the displacement was an accidental accompaniment. Theilhauber's views met with a storm of opposition. Nevertheless his paper reopened the question and paved the way for a reinvestigation of the subject, as a result of which his ideas met with confirmation from many sources. I will quote some well-known writers whose opinions support Theilhauber.

J. Montgomery Baldy[3] says, "Retrodisplacements of the uterus are mostly coincident with other lesions, and where such is the case the symptoms almost universally come from the associated disease."

J. Wesley Bovee[4] says, "I am convinced that uncomplicated uterine retroversion has no symptoms."

Howard A. Kelly,[5] in 13,600 gynecological cases at the Johns Hopkins Hospital, found 1886 retroflexions, of which 415 were uncomplicated.

W. J. Mayo[6] says, "While the normal position of the uterus in the majority of women,

* Read before the Chirurgical Society of Boston, Oct. 27, 1916.

perhaps 75%, is more nearly anterior than posterior, it will be acknowledged that in at least 25% and at various ages, retroposition exists."

Schroeder[7] examined 145 medical patients complaining of no pelvic symptoms, and found the uterus in anterior position in 75% and retroverted in 25%.

The writer in 1000 consecutive gynecological patients admitted to the Boston City Hospital during the first six months of 1914, found 306, or approximately 30%, with retroversion. Out of this number, only 13 were operated upon for an uncomplicated retroversion.

Practically every recent text-book admits the occurrence of retroversion without symptoms, yet it cannot be said that the ideas which I have quoted have gained general acceptance. The existence of eighty operations for retrodisplacements, most of them invented since Theilhauber's first communication, is sufficient evidence to the contrary.

Wherein, then, lies the cause for this difference of opinion?

Are there retroversions which give symptoms, and those which do not? If so, can the two types be recognized?

Can a retroversion be symptomless at one time, and give symptoms at another?

And, finally, what is the relation of retroversion to miscarriage and sterility?

For the answer to these questions we must go back to the etiology of the condition. At present retroversions are generally divided into three main classes as regards their etiology.

1. Inflammatory, due to the contraction of adhesions formed in the course of pelvic inflammatory disease.
2. Congenital.
3. Acquired, as the result of injuries during childbirth.

Inflammatory Retroversions. Retroversions resulting from pelvic inflammatory disease form perhaps the smallest of the three groups, yet the patients in this class most urgently demand relief, not for the displacement itself, but for the accompanying inflammatory disease. Out of 164 cases of salpingitis among the 1000 gynecological patients previously mentioned, the uterus was found retroverted in 79, or nearly 50%. In a considerable proportion of these cases, the retroversion must have been an accidental complication, since 30% of all gynecological patients were found to have retroversion. In the remainder of the cases, the retroversion was unquestionably the result of the inflammatory condition. It was formerly supposed that retroversion in the course of pelvic inflammatory disease is produced by a simple contraction of adhesions drawing the fundus backward. It is the writer's belief that the mechanism is somewhat more complicated. In a certain number of these cases classified as retroversion the cervix was found pushed forward toward the symphysis by a mass in the posterior cul-de-sac, throwing the fundus into relative retroversion. It is the writer's belief that this forward displacement of the cervix represents the first stage in inflammatory retroversion, the process being completed by shrinking of the mass in size; contraction of adhesions between the mass and the posterior surface of the uterus finally drawing the uterus back into complete adherent retroversion.

The diagnosis of this type of displacement is made on the evidence of the accompanying inflammatory process. The symptoms of the retroversion, if there are any due to the malposition itself, are covered up by those of the more urgent condition. The treatment of the retroversion is secondary and incidental to that of the inflammatory disease. After removal of the diseased appendages, the uterus may be suspended, by the round ligaments if any possibility of future pregnancy remain, or by the fundus if total ablation of the appendages has been performed.

Congenital Retroversions. If a patient with retroversion has no inflammatory condition and has never borne children, the displacement must be of the congenital type. By the study of these undoubted cases it is possible to determine certain definite characteristics by which the congenital type can be recognized. The anterior vaginal wall is short and has a low attachment to the cervix, which is fixed in the axis of the vagina. In nulliparae the cervix is somewhat conical. There is usually a distinct flexion between the body and cervix. This type of retroversion is seldom replaceable. The cervix is fixed, and even in multiparous women is not as movable as in the retroversions acquired at childbirth.

Retroversions Resulting from Childbirth. The retroversions resulting from injury and relaxation due to childbirth (and of course a congenital displacement may be converted to one of this type as a result of such injury) are characterized by abnormal mobility of the cervix, and practically always accompanied by descensus, of greater or less degree. In other words, these retroversions are merely a stage in prolapse of the uterus. But these are the retroversions which give symptoms and most frequently demand treatment. These retroversions, unless they have developed from the congenital type, or unless pelvic inflammatory disease has been superimposed, are always freely movable and usually replaceable. Fully to understand and differentiate these last two types, it is necessary to take up separately the etiology of each.

Etiology of the Congenital Type. Comparative anatomy, which is of great aid in explaining many anomalies of the human body, gives little help in this condition. In the lowest animal types the ova are discharged from the surface of the ovarium directly into the abdominal cavity and find their way into the outer world by means of an aperture in the peritoneum. In the higher animal forms there is a uterus which is always bicornuate, although in

certain types, notably birds, only one horn functionates. These horns are more or less convoluted and unite to form a short uterine body, which in turn opens into the vagina, the two lying in a continuous axis. The pelvic floor and fasciae are little developed, and the uterus receives its support chiefly from the mesometrium, which corresponds to the broad ligaments of the human female, and which is attached to the last rib and posterior abdominal parietes. In the domestic animals—mare, bitch, cow, etc.—the anterior position of the uterus begins to be well marked, although an angle between the uterine and vaginal axes is not necessitated by an erect position of the animal.

In the human female alone the uterus is a pelvic organ. In the lower animals it is abdominal. In the human embryo it is abdominal also. At birth it is retroverted about in the axis of the vagina (Graves).[8] During the development of the child it gradually sinks lower into the pelvis, and under the more common circumstances the corpus becomes drawn forward and the cervix back, and a slight (sometimes acute) angle of flexion is formed between the two. In a smaller number of individuals the retroversion persists. Goldsborough[9] has suggested that the explanation of this is as follows: if the anterior vaginal wall is short and tense and the utero-sacrals lax, the cervix is drawn forward and the fundus automatically carried backward. If the anterior wall is normally lax, the cervix is drawn by the utero-sacrals and the fundus falls forward into its usual position. As a corollary to this it may be added that when the fascia of the anterior vaginal wall is short and tense and has a low attachment to the cervix, and the utero-sacrals are also tense, the cervix is held in the axis of the vagina, although the fundus may be in anterior position (anteflexion). Goldsborough's hypothesis fully answers for the position of the cervix, but does not account for the position of the corpus. Some other force, probably the round ligaments, draws the fundus forward.

The writer's own view is that in these cases of congenital retroversion, the fetal position persists as a failure in development. The axis of the uterus remaining continuous with that of the vagina would predispose to prolapse, but just as Lane[10] has shown that Nature forms peritoneal adhesions about a mobile cecum to hold it in place, so adhesions are formed between the posterior surface of the uterus and the peritoneum over the rectum to resist downward displacement of the uterus. In some patients the fundus seems to flex backward instead of forward, for reasons which cannot be explained at present.

Etiology of Retroversions Acquired as a Result of Childbirth. As shown by Webster,[11] by Bissell,[12] by Hadden,[13] by Goffe,[14] and numerous others, including the writer,[15] the main support of the uterus in the pelvis is the pelvic fascia. (Fig. 1.) The pelvic fascia is continuous above

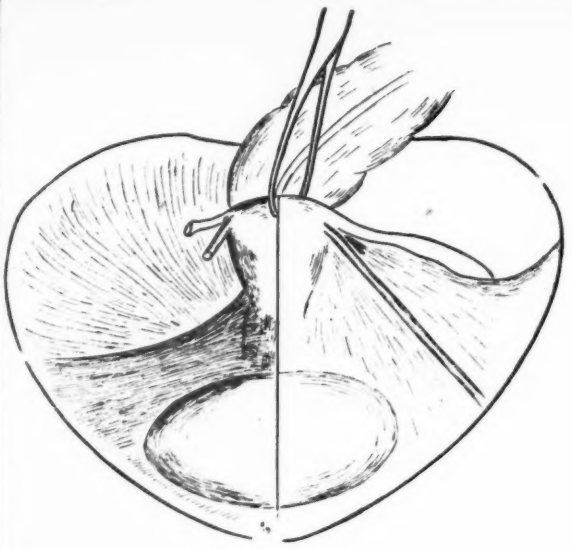

FIG. 1.
PELVIC FASCIA AND CARDINAL LIGAMENT. (EXPOSED ON RIGHT.)

anteriorly with the transversalis fascia, laterally with the iliac fascia, and posteriorly with the anterior layer of the lumbar fascia. Sweeping downward and inward from the brim of the pelvis, this fascia invests the vagina, the axis of which lies parallel to the plane of the superior strait, and forms a firm fibrous sling, upon which rests the bladder, and which by its insertion into the cervix at the level of the internal os, makes that part of the uterus normally the most fixed point of the organ. (Fig. 2.)

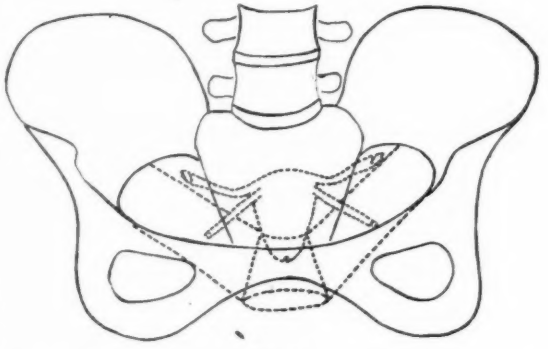

FIG. 2.
DIAGRAMMATIC VIEW OF FASCIAL SLING AND ITS ATTACHMENTS.

The fascia, at its insertion into the cervix, is reinforced laterally by a band of fibers extending inward from the wall of the pelvis, and spreading as they proceed to form a somewhat fan-shaped insertion into the lateral aspect of the uterus. (Fig. 3.) In this band of fibers runs the uterine artery. This reinforcement of the pelvic fascia is the so-called cardinal ligament of the uterus (Kochs[16]), or transverse ligament of the cervix (Mackenrodt[17]), or as Dudley[18] and Reynolds[19] have called it, the fibrous base of the broad ligament. Moritz[20] and others deny the existence of the cardinal ligaments, but Moritz admits the presence of much fibrous tissue about the uterine vessels. It makes little

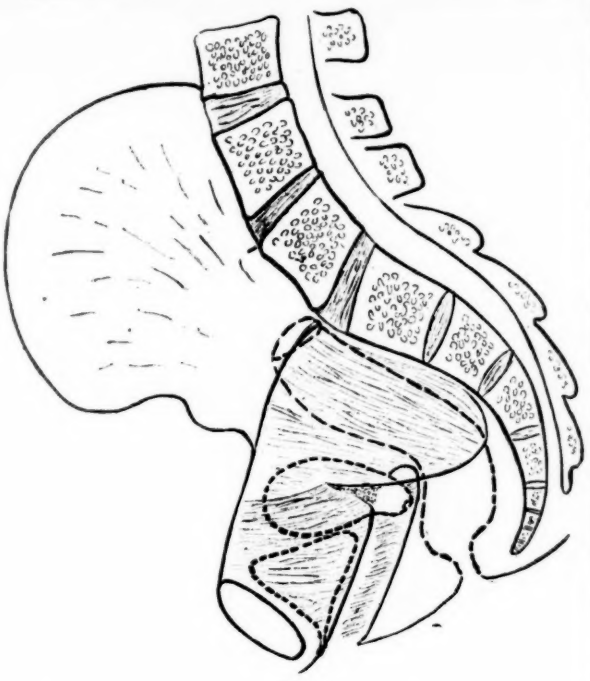

Fig. 3.
Pelvic Fascia and Cardinal Ligament. (Sagittal Section.)

difference by what name we call this structure, it is a part of the pelvic fascia and the pelvic fascia is the chief support of the uterus. Posterior to this ligament the fascia dips more deeply into the pelvis and sends a strong insertion to the rectum.

The pelvic floor lies at a distinctly lower level than the pelvic fascia. It is formed by the levator ani muscles, with the fasciae covering them, the small muscles of the pelvic outlet and the perineal fascia. The levator ani is divided into two parts, the posterior of which, or obturator coccygeus, arises from the inferior aspect of the white line formed by the division of the pelvic and obturator fasciae, and is inserted into the side of the coccyx, and serves chiefly to fill in the space between the ischium and the lower end of the vertebral column. It is with the anterior portion of the muscle, or pubo-coccygeus, that we are more intimately concerned. The pubo-coccygeus arises from the posterior surface of the os pubis and passes backward on either side of the vagina, to be inserted into the tip of the coccyx and the fasciae of the pelvic outlet, many of the fibers being inserted into a median raphe behind the rectum. There is much reason to believe that no fibres of the levator are inserted into this median raphe in front of the rectum. Studdiford[21] and others have failed to find any such fibres between the vagina and rectum. The connection of the levators with the fasciae of the perineum is so intimate, however, that an injury which caused separation of the muscle from the fascia would exert practically the same effect as damage to the muscle itself. The fascial sheath of the levator is derived from the fascia forming the posterior vaginal wall above and the anal fascia beneath, the two layers being continuous about the inner border of the muscle.

The small muscles of the perineum, the transversus perinei, sphincter vaginae, and ischiocavernosus are of small size and little importance. In fact it is very difficult to demonstrate them in a multiparous subject. Of much greater value is the perineal fascia, analogous to the triangular ligament in the male. This is a firm fascial plane which stretches between the ischiopubic rami, forming the external portion of the perineum. It unites at the fourchette with the fascia of the posterior vaginal wall. The perineal body consists of a little fibrous tissue between these fasciae, but the perineal fascia and the levator and its fascia, and not the perineal body, constitute the strength of the perineum.

The bladder and uterus are supported by the superior fascial plane. The posterior vaginal and anterior rectal wall are supported by the pelvic floor or inferior musculo-fascial plane. When as a result of the trauma of childbirth, or subinvolution or too early rising after confinement, the superior fascial plane becomes stretched out, the cervix descends in the pelvis and becomes abnormally movable. There is usually also a cystocele of greater or less degree. As the process goes on the cervix drops downward and forward, the fundus becoming retroverted secondarily. Finally all the supports become relaxed and the uterus can be put into any position. If this condition goes on far enough procidentia of the uterus and bladder outside the body will occur. In other words, retroversion of this type, as has been stated, is not a condition by itself but a part of the process of prolapse.

The treatment of retroversion. The treatment of the inflammatory type of retroversion is the treatment of the accompanying condition first, incidentally correcting the malposition if it seems advisable.

Congenital retroversions as a rule cause no symptoms and demand no treatment. Under certain conditions, as the increasing weight of the uterus during early pregnancy, or if the patient is subjected to unusual fatigue as by long standing, a temporary backache may develop, but operative measures are practically never necessary.

The symptoms of prolapse in its early stage are very definite and trying to the patient,—backache, abdominal soreness and a general sense of bearing down, sometimes interfering with standing and walking. A source of great confusion in diagnosis is the existence of a lumbar or thoracic backache with retroversion. It is now generally recognized that backaches of pelvic origin are practically always sacral in location, and that when the patient complains of pain higher up in the back, even though she has a retroversion, the chances are strongly against the retroversion being the cause of the backache.

A patient with beginning prolapse will require treatment. It is best, when possible, to defer operation until after the childbearing period, because of the increased difficulty of future labors and the likelihood of a return of the condition following another childbirth. In such patients, pessaries, while never absolutely satisfactory as a permanent measure, will often tide the patient successfully along until after the childbearing age when operation can be more safely performed. Tampons, douches and the knee chest position for frequent short periods are all of aid as palliatives.

The operative treatment of this type of retroversion must not only correct the backward displacement of the uterus, but also should restore the fascial supports. Failures in the operative treatment of retroversion are due in practically all instances either to:

(*a*) Operations done on cases where the correction of the retroversion was not indicated, *i. e.*, cases of the congenital type where the patient's symptoms were incorrectly assumed to be due to the malposition and were in reality due to something else.

(*b*) Treatment of the retroversion without regard for the mechanical factors which had resulted in the displacement, *i.e.*, suspending the uterus without restoring its fascial supports.

The operative treatment of retroversions acquired at childbirth is therefore incidental to and part of the operative treatment of prolapse, of which such retroversions are but a part. Space forbids a prolonged discussion of operations for prolapse, but the writer wishes to call attention to the essential principles upon which such operations should be based. These principles are in brief:

(*a*) A restoration of the superior fascial plane to its normal tension.

(*b*) A restoration of the inferior or musculo-fascial plane as nearly as possible to its normal anatomy.

It is practically impossible to restore the superior fascial plane to its original anatomical condition, once it has been badly stretched out, so we have to rely largely on restoring its tension sufficiently to hold up the bladder and uterus. There are many operations designed to secure this result by widely diversified methods. The more worthy of consideration are included in the following list.

1. Simple plastics.
2. Interposition operations (Schauta, Wertheim, Watkins).
3. Plication of the pelvic fascia,
   - By vaginal route.
     - Plication of the cardinal ligaments (Alexandroff, Dudley, Goffe, Nyulasy).
     - Vaginal hysterectomy with side to side approximation of the fascia (Mayo, Truesdale).
   - By abdominal route.
     - Abdominal plication of the pelvic fascia (Polk).
4. Ventral suspension.
   - By fundus (Olshausen, Kelly).
   - By round ligaments (Gilliam, Simpson, Noble, Mayo, Webster, Baldy).
   - By cervical stump after hysterectomy.
   - By inclusion of uterus in abdominal wall (Harris, Kocher, Murphy).
5. Posterior suspension.
   - By shortening the utero-sacrals.
   - By obliteration of the cul-de-sac of Douglas (Moschowitz, Jones).
   - By tendon of psoas parvus (Harris).

Simple plastics. It seems fairly well settled that simple plastics alone will not cure procidentia, although they form an important part of, or addition to, nearly all the procedures to be described. The writer will not attempt to describe the technic of these operations in detail because most of them are sufficiently well known to make such a description superfluous, but will try to point out the anatomical basis of each which is not so well understood. The old cystocele operation depends for its success upon the ability to pick up and bring together some strong fascia from the sides of the denudation. It is seldom possible to get strong enough fascia in this way to hold up a prolapsed uterus without other help.

Interposition operations.[22] The anatomical principles of the interposition operation consist in a resection of the fascia of the anterior vaginal wall, displacement of the bladder upward and turning the fundus forward beneath the bladder, practically turning the uterus upside down. The fundus is then anchored to the strong fascial plane near its pubic attachment, and the displacement of the cervix upward and backward puts the rest of the superior fascial plane upon the stretch. The success of this operation depends chiefly upon a firm uterus that will maintain the cervix in its displaced position.

Plication of the pelvic fascia. These operations are more strictly anatomical. Alexandroff[23] sutured the cardinal ligaments together in front of the cervix. Dudley[24] detached these ligaments from their uterine insertion and united them in front of the cervix. Nyulasy,[25] of Australia, plicates each cardinal ligament separately. The danger of all these operations is that the uterine artery or vein may be pricked very easily in introducing sutures through the cardinal ligaments, which accident has resulted in fatal secondary hemorrhage. Goffe,[26] in addition to plicating the ligaments, sutures the neck of the bladder to the uterus in its new position. Mayo[27] does a vaginal hysterectomy and then unites the fascia from side to side, thus taking up the slack and removing the weight of the uterus at the same time. Truesdale[28] turns out the uterus as for an interposition operation but then resects the uterus, uniting the fascia with a strip of uterine tissue from side to side but in an inverted position.

Polk[29] does the most strictly anatomical of all the operations. He separates the bladder and uterus from above, exposing a large part of the

superior fascial plane. He then plicates this fascia by continuous suture.

Ventral suspension. These various suspension operations are done only in conjunction with plastic operations and serve the double purpose of removing part of the weight of the uterus and helping to keep the fascia on the stretch after it has been reefed by the plastic operation, and thus maintain the support of the bladder. The round ligaments are as a rule entirely inadequate to stand the strain of supporting the uterus and bladder without pulling out, and round ligament suspensions are contraindicated by prolapse. In fact, Harris,[30] Kocher,[31] and Murphy[32] have even gone so far as to incorporate the fundus in the abdominal wall for added strength. Harris sutured the fundus to the under surface of the fascia. Kocher brought the fundus up through the fascia, and Murphy did likewise, but in addition bisected the uterus, removed the endometrium, and then sutured the two halves of the uterus separately to the upper surface of the fascia.

Posterior suspension. Shortening the uterosacrals is done with the idea of resisting the downward and forward displacement of the cervix which is the first stage in prolapse. The chief criticism of the operation is that these ligaments, like the round ligaments, are often inadequate to withstand the strain which is to be imposed upon them. Furthermore, this operation does not take into account the real anatomical support of the uterus.

Moschowitz[33] and Jones[34] have obliterated the posterior cul-de-sac by a purse-string suture picking up the peritoneum and underlying fascia, thus drawing the cervix backward.

Harris[35] conceived the ingenious idea of using the tendon of the psoas parvus to support the cervix in its normal position. The tendon is divided and its distal segment sutured to the posterior surface of the cervix. Should the psoas parvus be absent part of the psoas magnus may be used. Practically all these operations are intended to be accompanied by a perineorrhaphy to complete the restoration of the pelvic supporting planes.

Retroversion and pregnancy. Retroversion is frequently cited as a cause of sterility. The writer has reviewed the records of all patients coming to the Out-patient Department of the Boston City Hospital for the relief of sterility, from August 1, 1914, to August 1, 1916. Excluding cases with definite salpingitis or other obvious causes of sterility, there were left fifty patients. In these fifty patients showing no detectable abnormality of the appendages the position of the uterus was as follows:

Anteflexion	29, or 58%
1st degree retroversion	4, or 8%
2nd degree retroversion	12, or 24%
3d degree retroversion	5, or 10%

Classifying first degree retroversion as anterior position, which it really is, there were about 2-3 anterior and 1-3 posterior positions of the uterus or about the same proportion as in the 1000 gynaecological house patients already mentioned. Among these 1000 patients there were 284 married women with retroversion. Of these, only 21 had never been pregnant and of these 21, nine had distinct evidence of tubal disease, leaving only twelve in whom the retroversion could possibly be considered as a cause of sterility, or 4.2%, a rather small proportion if retroversion is to be indicated as a cause of sterility. It is apparent from this very brief survey that something more than the position of the uterus alone is necessary to account for sterility.

With regard to retroversion as a cause of miscarriage: In retroversion of the congenital type, the malposition is usually corrected spontaneously about the third month. This we know, aside from the few cases we are able to follow, by the fact that while, as we have shown, pregnancy in a retroverted uterus must be very common, incarceration is very uncommon. Occasionally the pregnant uterus does become incarcerated, and reposition under anaesthesia becomes necessary. This accident is more likely to happen in the cases of retroversion associated with prolapse because the lower position of the uterus in the pelvis makes it more easily caught under the promontory, and the greater mobility of the organ also allows the retroversion to increase under the growing weight of the uterus during pregnancy. Where the retroversion is of the acquired type and freely replaceable, a pessary should be inserted and worn until the uterus rises out of the pelvis about the fourth month.

When the retroversion is of the congenital type and not replaceable, the patient should be kept under observation and examined once a week in order to detect evidence of beginning incarceration, in which case the position must be corrected under anaesthesia.

What should be done with a uterus found retroverted after confinement? If the retroversion is of the congenital type and is giving no symptoms it may be safely let alone. If there is considerable mobility of the cervix or definite prolapse, the patient will practically always have backache or other symptoms. In these cases pessary treatment should be instituted to prevent further development of the displacement.

CONCLUSIONS.

1. Retroversions of the uterus may be divided into three classes.

(*a*) Inflammatory, in which the uterus is displaced by a pus mass and the fundus afterwards drawn backward by adhesions.

(*b*) Congenital, in which the retroversion may be said to be the normal position of the uterus for that individual.

(*c*) Acquired, as the result of injury or relaxation consequent upon childbirth in

which the retroversion is not a condition *per se*, but a part of the general process of prolapse.

2. In retroversions of the first class, treatment is directed primarily to the inflammatory process and the displacement is corrected only incidentally.

3. Congenital retroversions are usually symptomless and require no treatment.

4. Retroversions acquired as the result of parturition should be considered as a step in prolapse of the uterus and the downward as well as the backward displacement corrected.

5. Retroversion is an infrequent cause of sterility in itself.

6. Retroversion may cause miscarriage if the uterus becomes incarcerated but most retroversions are corrected spontaneously during the early months of pregnancy.

7. A retroverted uterus discovered on postpartum examination, if obviously congenital in type, needs no treatment. If of the acquired type, the malposition should be corrected and treatment by pessary instituted, deferring operation if possible until the patient has passed the childbearing period.

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BUBONIC PLAGUE IN LIVERPOOL.—It is reported that bubonic plague has made its appearance at the Port of Liverpool and the New York quarantine department has issued the order that all vessels, excepting passenger ships from Liverpool, shall be subject to fumigation at the end of every voyage, for the destruction of rats, and shall comply with the plague regulations of this port.

A POINT SCALE FOR THE MEASUREMENT OF INTELLIGENCE IN ADOLESCENT AND ADULT INDIVIDUALS.*

BY ROBERT M. YERKES, PH.D., BOSTON,

Psychologist, Psychopathic Hospital, Boston, and Assistant Professor of Comparative Psychology, Harvard University;

AND

CECILIO S. ROSSY, M.A., NEW YORK,

Formerly Interne in Psychology, Psychopathic Hospital, now Psychologist, Psychiatric Clinic, Sing Sing Prison, New York.

THE application of the original pre-adolescent point scale has proved that it yields most reliable measurements of intelligence from the ages of 6 or 7 to 12 or 13 years. The scale offers too few opportunities for credit to individuals under 7 years, and too few opportunities for failure to bright individuals above 13 years. It has, therefore, seemed to us desirable to develop two additional point scales to supplement the original scale: the one to be called an infant scale; the other, an adolescent scale. With the completion of these, we should have, for the measurement of intelligence, three scales of twenty tests each which may conveniently be designated as: (1) the infant scale, (2), the child scale, and (3) the adolescent scale. The latter should be understood as covering maturity as well as adolescence.

Late in 1915 we assembled twenty tests as an adolescent point scale group, arranged them chiefly in accordance with convenience of presentation, weighted them in the light of our clinical experience, and proceeded to accumulate data which should enable us thoroughly to criticize the proposed scale and profitably to revise or reconstruct it.

It is the purpose of this report to describe the initial form of the adolescent point scale, with the directions for its use, and to present certain general results from approximately two hundred and fifty examinations.

It should be stated with emphasis that the point scale herein described is merely a provisional group of tests which we have no thought of standardizing, but which we propose to revise thoroughly on the basis of the results obtained by various examiners before we enter upon the task of securing norms for the individual tests and for a revised form of the scale.

The record blank which we have employed is reproduced below one-half size. It consists of four pages, the tests on which are so arranged that all of those involving writing or drawing by the subject appear on page 4.

Most of the tests of the group are in principle old, although much new material has been

* Being Contribution of the Massachusetts Commission on Mental Diseases, whole number 167 (1917.1). The previous contribution (166, 1916.24) was by E. E. Southard and M. M. Canavan, entitled "The Stratigraphical Analysis of Finer Cortex Changes in Certain Normal-looking Brains in Dementia Praecox," to appear in *Journal of American Neurological Association.*

PSYCHOPATHIC DEPARTMENT

BOSTON STATE HOSPITAL

RECORD BLANK FOR YERKES-ROSSY ADOLESCENT-ADULT POINT SCALE EXAMINATION.

NAME ..... AGE ..... DATE OF BIRTH ..... SCORE .....

DATE ..... PLACE OF BIRTH ..... COEF. I.A. .....

EXAMINED BY ..... NATIONALITY ..... MENTAL AGE .....

TEST	CREDITS
1 Response to pictures (3 each).	
(*a*)	
(*b*)	
(*c*)	
2 Comparison of weights (1 each).	
(*a*) 6 and 9 grams.	
(*b*) 12 and 15 grams.	
(*c*) Arranging weights 3, 6, 9, 12 and 15 grams in order.	
3 Memory span for digits (1 each)	
(*a*) 9-2-8-7-4 6-1-8-5-3	
(*b*) 5-8-2-7-6-9 8-4-7-3-9-2	
(*c*) 7-2-8-3-1-6-5 1-7-4-9-5-2-6	
(*d*) 6-9-4-1-3-8 2-7 3-8-1-5-9-4-6-2	
(*e*) 2-9-4-7-5-8-6 3-1 4-9-2-6 7-5-1-3-8	
4 Suggestibility (5).	
1 2 3 4 5 6 7 8 9 10	
11 12 13 14 15 16 17 18 19 20	
5 Memory for unrelated sentences (1 each).	
(*a*) The sea is very rough. Skill comes with patience.	
(*b*) There are many kinds of play and work. We should always be truthful.	
(*c*) No one can afford to be untrue to himself. It is time for us to return.	
(*d*) I saw a large, black object in the sky. If he had seen the happy young face, his heart would have melted.	
(*e*) As we looked across the dusty, gray plain, our eyes ached. It is not possible to acquire too many good habits of mind.	

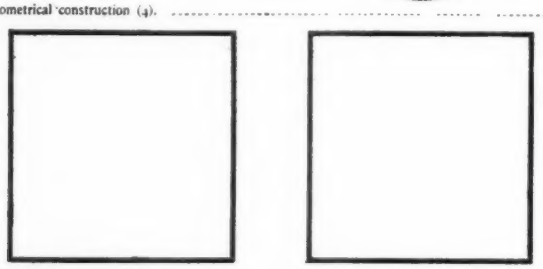
TEST	CREDITS
6 Comparison of terms (2 each).	
(*a*) Milk and water.	
(*b*) Paper and iron.	
(*c*) Idleness and laziness.	
Comprehension of questions (1 each).	
(*a*) Why is a train safer than a steamer or an aeroplane?	
(*b*) Why is it better to judge people by what they do rather than by what they say?	
(*c*) Why should we be more ready to forgive an unkind act done in anger than one done without anger?	
(*d*) Why should a man accused of a crime be considered innocent until he is proved guilty?	
(*e*) Why is honesty the best policy?	
8 Definitions of abstract and concrete terms (2 each).	
(*a*) House.	
(*b*) Door.	
(*c*) Honesty.	
(*d*) Conceit.	
9 Appreciation of absurdities (1 each).	
(*a*) It has been found that the last car of a train is damaged most in case of an accident. It therefore seems best to leave off the last car.	
(*b*) The commissioners have resolved to build a new jail from the materials of the old jail, but they are going to keep the prisoners in the old jail until the new one is finished.	
(*c*) A father wrote to his son: "I enclose ten dollars. If you do not receive this letter, please send a telegram."	
(*d*) A man wished to dig a pit in which to bury some rubbish. He could not decide what to do with the dirt from the pit. A friend suggested that he dig the pit large enough to hold the dirt too.	
(*e*) A man claims that he has a telescope which is so powerful that when he looks at a church five miles away, it appears so near that he can hear the organ playing.	

TEST	CREDITS
10 Analogies (1 each).	
(*a*) Pocket is to coat as closet is to	
(*b*) Sun is to day as moon is to	
(*c*) Arm is to elbow as leg is to	
(*d*) Known is to unknown as present is to	
(*e*) Whole is to part as six is to	
(*f*) Sunday is to Saturday as January is to	
11 Association of opposites (4).	

Wise	Never	Busy	Generous	Many
Silent	Joy	Distant	Horrid	Rough
Similar	Prompt	Lazy	Rude	Upper
Cheap	Vacant	Easy	Top	After

12 Relational test (2 each).	
(*a*) Middle.	
(*b*) Second from left.	
(*c*) Fourth from right.	
(*d*) One place to right of middle.	
13 Box test (1 each).	
(*a*) Large box containing two smaller boxes with one still smaller in each of the two.	
(*b*) Large box containing two smaller boxes with two inside of each.	
(*c*) Large box containing three smaller boxes with three inside of each.	
(*d*) Large box containing four smaller boxes with four inside of each.	
14 Ingenuity (7).	
(*a*) If you were asked to get seven pints of water from a well, and were given a three-pint vessel and a five-pint vessel, could you measure out exactly seven pints without guessing at the amount, if you began by filling the five-pint vessel first? (3)	
(*b*) Five and seven-pint vessels to get eight pints, filling first the five-pint vessel? (2)	
(*c*) Four and nine-pint vessels to get seven pints, beginning by filling the four-pint vessel? (2)	

TEST	CREDITS
15 Comparison of capital letters (2).	
L H N I Y V M	
16 Code learning test (3 each).	
(*a*) h c f i b g d a e	
(*b*) 5 8 1 7 2 4 9 3 6	
17 Ball and field (2).	
18 Geometrical construction (4).	



19 Reproduction of diamonds (2).	
20 Memory for designs (2 each). (*a*)..... (*b*).....	

introduced, and in a few instances the tests have been so modified as to be markedly different from their earlier forms.

For Test 1 there are used, instead of the Binet pictures, three Perry pictures (Boston Edition, penny size):

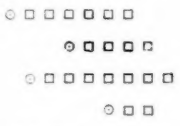
a. Picture No. 893, entitled "Saved,"

b. Picture No. 1076, entitled "The Music Lesson,"

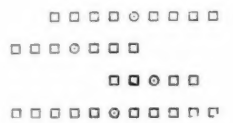
c. Picture No. 2785, entitled "The Child Handel."

For Test 2 the same set of weighted cubes is employed as in the original point scale. The Healy butcher shop picture is used for Test 4, in accordance with the directions given below.

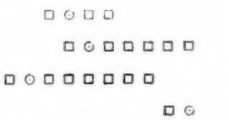
Test 12 is a new test based upon the Yerkes multiple choice method of measuring ideational efficiency.[1] The five cards which are used as materials for this test appear in Fig. 1 reduced one-half. In our set of materials, the standard card for this test measures 6 by 8 inches.



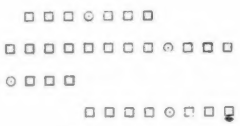
Test 12. Explanation Card.



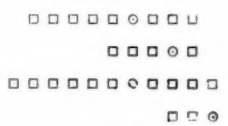
Test 12, A.



Test 12, B.



Test 12, C.



Test 12, D.

Fig. 1.

Tests 13, 14, and 17 are taken directly from the Stanford Scale.

The material for Test 15 is presented on the record blank, on the fourth page of which appear seven capital letters, which are to be arranged in order of increasing total length of line. These letters appear reduced by one-half in the facsimile of the record sheet.

For the code learning test an explanatory drawing and letter code with the word *nor* written in symbols is first presented by the experimenter.† Then the cards, reproduced half size, as Fig. 2, are presented.

a	f	g
b	e	h
c	d	i

Test 16, A.

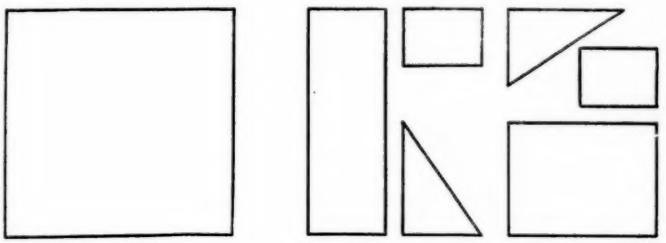
1	7	8
6	2	9
5	4	3

Test 16, B.

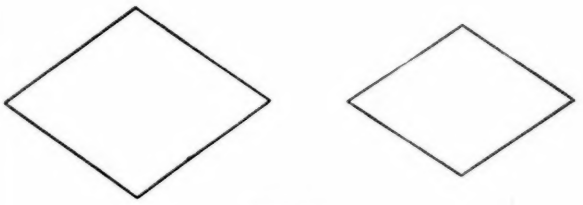
Fig. 2.

† This appears in the directions for examination.

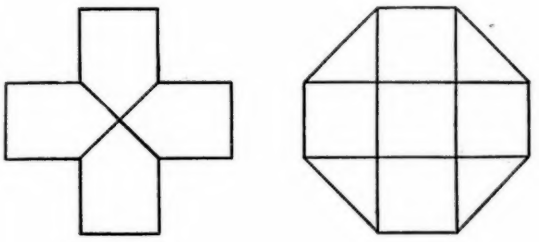
Test 18 was devised by the writers as a visual construction test, the card for which appears at the top of Fig. 3, reduced one-half. This figure likewise presents the materials for Tests 19 and 20, both of which are new as to material, old in principle.



Test 18.



Test 19.



A B

Test 20.

Fig. 3.

The full directions for the making of an adolescent point scale examination follow. They are intentionally brief and have already served their purpose as guides in a preliminary application of the scale by several experienced examiners.

Brief Preliminary Directions for Using the Adolescent-Adult Point Scale.

These directions will suffice for experienced examiners only.

The scale is to be used only for individuals whose intellectual ability appears to be equal to or greater than that of the twelve-year old child.

The order of tests need not be followed strictly if good reasons for change appear.

This scale has not yet been standardized and is subject to revision. Norms are to be established.

It is desirable to keep very full records of responses, in order that the tests may be criticized, modified, and standarized.

MATERIALS.

Stop-watch.

Test 1. Three Perry pictures ("Saved," "The Music Lesson," and "The Child Handel").

Test 2. Set of five weighted cubes, 3, 6, 9, 12, and 15 grams.

Test 4. Picture of butcher shop (Healy).

Test 12. Five cards for relational test.

Test 16. Two cards for code test.

Test 18. Cards for geometrical test.

Test 19. Card for reproduction of diamonds.

Test 20. Card for memory for designs.

DIRECTIONS.

Test 1. Response to pictures (maximum credit, 9 points).

Three Perry pictures are to be used in this test: (*a*) "Saved"; (*b*) "The Music Lesson"; (*c*) "The Child Handel."

Picture (*a*) is placed before the subject, and the examiner says: "Please describe this picture for me as well as you can." As soon as the subject has completed the description, if interpretation has not already been given, ask: "What does it mean?"

Give credit as follows for each picture: For excellent description (at least eight features correct) give 2 points; same with correct interpretation, 3 points. For good description (four to seven features correct) give 1 point; same with correct interpretation, 2 points. For meager description (only two or three features correct), with correct interpretation, give 1 point. For simple enumeration, allow no credit.

Time for each picture, 2 minutes.

Test 2. Comparison of weights (maximum credit, 3 points).

Have the five weights arranged in order, so that they can be presented quickly and without trial. Then present as part (*a*) of the test, the weights 6 and 9 grams, saying: "Tell me, please, which is the heavier of these two blocks." Similarly, (*b*), present the 12- and 15-gram blocks. (*c*) Present the five weighted blocks, saying: "Please arrange these in order of increasing weight, the lightest at one end, the heaviest at the other."

To avoid the extreme risk of guesses, give two trials for parts (*a*) and (*b*). Give only one trial for part (*c*), but let the second trial for parts (*a*) and (*b*) follow part (*c*).

It is especially important in this test that the examiner should not suggest the lifting of the weights or any other method of comparison.

Give credit as follows: For (*a*) give 1 point if the weights are immediately compared by lifting and if correct judgments are given in both trials. Give no credit if a mistake is made in either trial. Likewise, for part (*b*) give 1 point credit for correct and immediate judgment on the basis of lifting, allowing no credit if a mistake is made in either trial. For (*c*), give 1 point credit if the weights are arranged in correct order. Allow no credit if a mistake is made.

Time for (*a*), 30 seconds; (*b*) 30 seconds; (*c*) 1 minute.

Test 3. Memory span for digits (maximum credit, 5 points).

Say to the subject: "Please listen carefully and as soon as I stop, repeat just what I have said."

	TRIAL 1.	TRIAL 2.
(*a*)	9-2-8-7-4	6-1-8-5-3
(*b*)	5-8-2-7-6-9	8-4-7-3-9-2
(*c*)	7-2-8-3-1-6-5	1-7-4-9-5-2-6
(*d*)	6-9-4-1-3-8-2-7	3-8-1-5-9-4-6-2
(*e*)	2-9-4-7-5-8-6-3-1	4-9-2-6-7-5-1-3-8

Present the digits orally at the rate of two per second, enunciating very clearly and distinctly. If the subject fails to reproduce a given group, present the group containing the same number of digits under Trial 2. If the subject fails in this trial, proceed no further with the test; but if, instead, success is attained, present in like manner the next larger group of digits under Trial 1, and continue according to the above directions until the subject has failed in both trials for a given group of digits.

Give 1 point credit for the perfect reproduction, in either Trial 1 or Trial 2, of each of the five parts of the test.

Time, 2 minutes.

Test 4. Suggestibility (maximum credit 5 points).

Present the picture of a butcher shop (Healy) to the subject, with the statement: "I am going to show you a picture for ten seconds. Please look at it carefully so that you can answer some questions I shall ask about it." Allow the subject ten seconds for the examination of the picture, then remove it and ask as rapidly as possible the following twenty questions, recording the subject's responses thus: Let + indicate correct statement or resistance; —, incorrect statement or acceptance of suggestion. The questions involving suggestion are indicated by S.

1. Did you see a woman and a man?
S. 2. Were there two children with the woman?
3. Did you see the sausages in the butcher's hand?
S. 4. Did you notice the electric light over the counter?
5. Was there a dog in the shop?
S. 6. Did you see the open door of the shop?
7. The woman had a basket on her arm, did she not?
S. 8. How many oranges were in the basket?
9. Did you see the chopping block?
S. 10. And the stool behind the butcher?
11. Were the scales hanging up?
S. 12. Was the cash register on the counter?
13. The knife in the butcher's hand was a large one, wasn't it?

S. 14. Did you notice the people on the street?
15. Had the little girl bundles in her arms?
S. 16. Was her hair-ribbon red or blue?
17. Did you see the ice box (refrigerator) behind the butcher?
S. 18. Was the butcher's hat black?
19. Was the floor clean?
S. 20. How many windows did you see?

Give 5 points' credit if all the suggestions are resisted either by correct statement or by the statement: "I don't know." Give 4 points if nine of the ten suggestions are resisted. Give 3 points if eight of the ten are resisted. Give 2 points if seven of the ten are resisted. Give 1 point if six of the ten are resisted.

Time, 15 seconds for each question.

Test 5. Memory for unrelated sentences (maximum credit, 5 points.

Say to the subject: "Now please listen very carefully, and after I stop, repeat just what I have said." Then present the following sentences in order, with almost no pause between the two sentences of a given part.

(*a*) The sea is very rough. Skill comes with patience.
(*b*) There are many kinds of play and work. We should always be truthful.
(*c*) No one can afford to be untrue to himself. It is time for us to return.
(*d*) I saw a large, black object in the sky. If he had seen the happy, young face, his heart would have melted.
(*e*) As we looked across the dusty, gray plain, our eyes ached. It is not possible to acquire too many good habits of mind.

Give 1 point credit for precisely correct reproduction of each part. Give no credit if a single error is made, unless it be clearly a case of a misunderstood word. Allow only one trial.

Time, 15 seconds for each part.

Test 6. Comparison of terms (maximum credit, 6 points).

Say to the subject: "I wish you would compare as well as you can, milk and water; that is, tell all the important likenesses and differences you can think of." Similarly, present as part (*b*) the terms paper and iron; as part (*c*), the terms idleness and laziness.

Give 2 points credit for a comparison involving four or more correct and important elements in case of (*a*) or (*b*), and the essential differences in case of part (*c*).

Give 1 point for two or three correct and important elements in case of (*a*) or (*b*) and the correct defining of either term in case of (*c*).

Time, 2 minutes for each part.

Test 7. Comprehension of questions (maximum credit, 5 points).

Say: "I shall now ask you some questions. Please answer them as satisfactorily as you can."

(*a*) Why is a train safer than a steamer or an aeroplane?
(*b*) Why is it better to judge people by what they do rather than by what they say?
(*c*) Why should we be more ready to forgive an unkind act done in anger than one done without anger?
(*d*) Why should a man accused of a crime be considered innocent until he is proved guilty?
(*e*) Why is honesty the best policy?

Give one point credit for correct answers or such as in your judgment show fair insight, judgment, and reasoning ability. Disagreement with the answer suggested by the form of the question should receive credit if logically supported. Differences from the conventional type of answer may indicate superiority, and should, if reasonable, receive full credit. It is important to grade closely.

Time, 2 minutes for each part.

Test 8. Definitions (maximum credit, 8 points).

Say to the subject: "I wish you to define as accurately as you can, the following words." Or, if the subject is comparatively illiterate, say: "I wish you to tell me what these words mean: (*a*) house; (*b*) door; (*c*) honesty; (*d*) conceit."

Give 2 points credit for an excellent form of definition containing the essential elements, whether or not conventional. Give 1 point credit for a definition which involves enough correct elements for the certain identification of the concept.

Time, 1 minute for each term.

Test 9. Appreciation of absurdities (maximum credit, 5 points).

Say to the subject: "I am going to read some sentences to you and I wish you to tell me what you think of them."

The examiner must be especially careful not to suggest that the sentences are foolish or absurd.

(*a*) It has been found that the last car of a train is damaged most in case of an accident. It, therefore, seems best to leave off the last car.
(*b*) The commissioners have resolved to build a new jail from the materials of the old jail, but they are going to keep the prisoners in the old jail until the new one is finished.
(*c*) A father wrote to his son: "I enclose ten dollars. If you do not receive this letter, please send me a telegram."
(*d*) A man wished to dig a pit in which to bury some rubbish. He could not decide what to do with the dirt from the pit. A friend suggested that he dig the pit large enough to hold the dirt, too.
(*e*) A man claims that he has a telescope which is so powerful that when he looks at a

church five miles away, it appears so near that he can hear the organ.

Give 1 point credit for each detection and clear statement of an absurdity. Grade closely.

Time, 1 minute for each part.

Test 10. Analogies (maximum credit, 6 points).

"If I should say, 'Man is to boy as woman is to ——', how would you complete the sentence?" If the subject says, "girl," proceed with the next example. If not, supply the missing word. "Boat is to water as train is to ——." Again give the subject an opportunity to complete the sentence, and if he is unable to do so, supply the missing word.

Having made clear the nature of the test, proceed to present in order the following six analogies:

(*a*) Pocket is to coat as closet is to ——.
(*b*) Sun is to day as moon is to ——.
(*c*) Arm is to elbow as leg is to ——.
(*d*) Known is to unknown as present is to ——.
(*e*) Whole is to part as six is to ——.
(*f*) Sunday is to Saturday as January is to ——.

Give 1 point credit for each correct response. Grade carefully and closely. Time for each part, 30 seconds.

Test 11. Association of opposites (maximum credit, 4 points).

Say to the subject: "I am going to read off a list of words, and as I read them, I wish you would give me the opposite of each word, like this: high—low; large—small; hard—soft. Now we shall begin."

Wise	Never	Busy	Generous	Many
Silent	Joy	Distant	Horrid	Rough
Similar	Prompt	Lazy	Rude	Upper
Cheap	Vacant	Easy	Top	After

Give 4 points credit for correct response to each of the twenty words. Give 3 points credit if not more than three mistakes appear. Give 2 points credit if not more than six mistakes appear. Give 1 point credit if not more than 9 mistakes appear.

Time, 3 minutes.

Test 12. Relational test (maximum credit, 8 points).

Explain thus to the subject the nature of the test: "I am going to show you a card with four lines of squares and circles on it." Then show the explanation card with the circle in each case as the first symbol at the left and ask the subject, "What is the relation of the circle to the squares on this card?" If he does not perceive that it is always the first symbol at the left, explain this relation to him. Make perfectly sure that the idea of uniform relationship, that is, the same relationship for each of the four lines, is grasped. Having thus made plain the nature of the test, present in turn cards representing the four relations of symbols (Fig. 1).

(*a*) Middle.
(*b*) Second from left end.
(*c*) Fourth from right end.
(*d*) One place to the right of middle, or always two more squares on the left of the circle than on the right.

Give 2 points credit for each part for which the relation is discovered and correctly formulated. Give 1 point credit if the relation is so perceived that it can be reproduced in new groups of symbols, but cannot be expressed in words.

Time, 2 minutes for each part.

Test 13. Box test (maximum credit, 4 points).

"Please tell me how many boxes you would have if I gave you: (*a*) A large box with two smaller boxes inside of it, and inside of each of the smaller boxes, one still smaller. (*b*) A large box with two smaller boxes inside of it, and inside of each of the smaller boxes, two still smaller. (c) A large box with three smaller boxes inside of it, and inside of each of the smaller boxes, three still smaller. (*d*) A large box with four smaller boxes inside of it, and inside of each of the smaller boxes, four still smaller."

Give 1 point credit for correct response in case of each part.

Time, 1 minute for each part.

Test 14. Ingenuity (maximum credit, 7 points).

Say to the subject: "I am going to give you some practical problems. If you wish to, you may use this pencil and paper in working them out." Then present: (*a*) "If you were asked to get seven pints of water from a well and were given a three-pint vessel and a five-pint vessel, could you measure out exactly seven pints without guessing at the amount, if you began by filling the five-pint vessel first? You understand that you have no third vessel, but if you want to, you can throw out water."

If the subject fails to solve this problem in three minutes, explain it to him in the following way: "Fill the five-pint vessel. Then from it, fill the three-pint vessel. Now, empty the three-pint vessel. Pour the two pints remaining in the five-pint vessel into the three-pint vessel and refill the five-pint vessel. As a result, you will have precisely seven pints of water in the two vessels."

After the correct solution of (*a*), either by the subject or with the aid of the experimenter, present as (*b*): "If you were asked to get eight pints of water and were given a five-pint vessel and a seven-pint vessel, could you measure out exactly eight pints of water without guessing at the amount, if you began by filling the five-pint vessel first? (*c*) If you were asked to get seven pints of water and were given a four-pint vessel and a nine-pint vessel, could you measure out exactly seven pints without guessing at the

amount, if you began by filling the four-pint vessel first?"

Make sure that the problems are understood, so far as the subject is capable of understanding them.

Give 3 points credit for correct and independent solution of problem (*a*). Give 2 points credit for correct solution of problem (*b*), either with or without explanation of problem (*a*). Give 2 points credit for problem (*c*), either with or without explanation of problem (*a*).

Time, 3 minutes for part (*a*); 2 minutes for part (*b*); 2 minutes for part (*c*).

Test 15. Comparison of capital letters (maximum credit, 2 points).

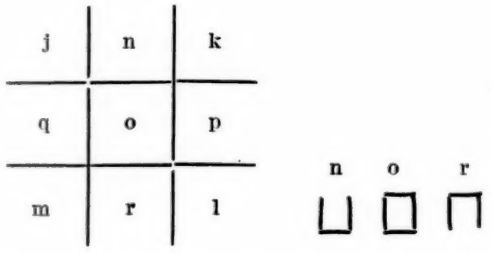
Present to the subject on page 4 of the record sheet the capital letters L, H, N, I, Y, V, and M, saying: "Please look at these letters carefully and arrange them in order of the length of line which is needed to make them. You see if you straighten out the M, it would make a much longer line than the I." Make sure that the subject understands what is meant. Then give him a pencil and have him write the letters on the record sheet, in the space provided, in what he conceives to be the correct order.

Give 2 points credit for the correct order—I, L, Y, V, H, N, M. Give 1 point if either of the pairs of letters L, Y, or H, N, is reserved. Give no credit if both pairs are reversed, and no credit for anything poorer.

Time, 2 minutes.

Test 16. Code learning test (maximum credit, 6 points).

Explain the purpose and meaning of the code test by drawing the following figure and indicating to the subject the symbols for the word "nor."



After you are sure that the subject understands the nature of the test, say: "I am now going to show you a figure in which different letters are used. I shall let you study it for twenty seconds; that is a very short time. Please try to learn it so that you can write the symbol for each letter."

Then present the appropriate card for code (*a*), allow the subject twenty seconds for observation, and immediately thereafter have him reproduce the symbols for the letters as given on the record sheet under the test.

This part having been completed, present in similar fashion the card for part (*b*), the number code. Allow twenty seconds for the learning of the code. Then have the subject reproduce the symbols for the digits as they appear on the record sheet.

Give 3 points credit for correct reproduction in case of each part. Give 2 points credit if one error is made. Give 1 point credit if not more than three errors are made.

Time for reproduction of each part, 1 minute.

Test 17. Ball and field (maximum credit, 2 points).

Present to the subject the broken circle on page 4 of the record sheet, saying: "If you were told that a ball had been knocked into this field and lost in the grass, and you had no notion as to the direction from which it came, or where it may have landed, how could you most quickly and easily find it? Show me on this paper what path you would follow in searching for it." Have the subject trace a path in the circle which appears on page 4 of the record sheet.

Give 2 points credit for an inward or outward spiral or for a systematic back and forth plan (straight or curved path). Give 1 point credit for concentric circles or for radii or diameters systematically followed. Give no credit for anything poorer.

Time, 2 minutes.

Test 18. Geometrical construction test (maximum credit, 4 points).

Place before the subject the geometrical construction card, saying: "Here is a drawing with a number of parts or pieces. If they are properly fitted together, they will make a square. Now please take this pencil and show me how the parts can be fitted together to just fill this square." (One of the squares on page 4 of the record sheet.)

If the subject does not get the parts properly arranged on the first attempt, allow him to try again in the second square on the record sheet.

Give 4 points credit for correct arrangement of the parts on first trial. Give 2 points credit for correct arrangement on second trial. Give 1 point credit if all parts are correctly placed, except the two triangles, in the second trial.

Time for first trial, 2 minutes; for second trial, 2 minutes.

Test 19. Reproduction of diamonds (maximum credit, 2 points).

Present squarely before the subject, with the base of the card toward him, the pair of diamonds and say: "I wish you to copy these two figures very carefully and accurately." The reproduction should be made on page 4 of the record sheet in the proper space, with a pencil. The subject should not be allowed to move the paper about.

Give 2 points credit for approximate correct-

ness in form and size. Give 1 point credit for easily identifiable reproduction of form but failure to reproduce the relative sizes.

Time, 1 minute.

Test 20. Memory for designs (maximum credit, 4 points).

Say to the subject: "I am going to show you a pair of drawings. After you have looked at them for ten seconds, I shall take them away and ask you to draw both of them from memory. Look at them very carefully." Then present for ten seconds the card bearing the two designs. Have the subject reproduce the designs with pencil in the space provided on page 4 of the record sheet.

Give 2 points credit for correct and accurate reproduction of (*a*) or (*b*). Give 1 point credit for (*a*) or (*b*) if a minor imperfection appears, such as the omission of the cross lines or their introduction in the wrong figure.

Time, 2 minutes.

GENERAL RESULTS OF APPLICATION OF SCALE.

To the following expert examiners who have generously aided us, we take pleasure in expressing our obligation and our thanks: Drs. Helen T. Woolley, Thomas H. Haines, R. H. Sylvester, Josephine N. Curtis, Mabel R. Fernald, Frederick L. Wells, Miss Rose S. Hardwick, and Mr. Willard L. Smith.

As it is our intention to use our data (both measurements and criticisms) as the basis for a revision of the scale which will be reported later, we shall present in this connection only the ranges of scores and the averages for various groups of subjects. These will serve examiners temporarily as rough norms or standards to regulate expectation.

For a group of twenty-three women in the reformatory at Bedford Hills, New York, the adult scores ranged from 14 to 61 points. The relation of these scores to the pre-adolescent scores are exhibited in Table 1.

Similarly the range for a group of thirty-three high-grade pupils in the School for the Feeble-minded at Waverley, Massachusetts, is 18 to 59 points. Few of these individuals would be in the school except for affective peculiarities and resulting delinquencies. Table 2 presents the scores for the group.

It is to be noted that the ratios of the adult score to the pre-adolescent score are nearly the same: .48 : 1.00 for the Bedford Hills group and .51 : 1.00 for the Waverley group. The conclusion indicated is that for subjects of medium to poor intelligence the adult score will be approximately one-half the pre-adolescent score.

TABLE 1.
BEDFORD HILLS GROUP (DR. FERNALD).

AGE	ADULT SCORE	PRE-ADOLESCENT SCORE
29.3	14	62
19.5	16	57
32.2	18	65
22.2	20	67
21.2	21	58
19	22	63
37.6	24	64
16	27	59
16.7	27	74
26.6	28	61
16.7	29	70
21.7	31	66
24.6	34	75
20.9	35	74
25.7	36	62
17.5	36	77
19.3	39	72
29.2	49	80
21	50	90
22.6	52	81
18.3	55	82
18	56	85
22	61	86
Averages for 23 cases	34	71

Adult score=.48 of pre-adolescent score.

TABLE 2.
WAVERLEY GROUP (DR. CURTIS).

AGE	ADULT SCORE	PRE-ADOLESCENT SCORE
25.3	54	80
32.8	56	82
16.7	59	84
26.7	20	62
38	18	68
19.6	26	71
30.8	27	72
26.9	27	79
19.7	52	83
20.9	28	73
24.3	28	65
28.1	29	67
25.6	32	80
18.9	32	77
23	32	70
25.3	32	69
19.6	33	72
25	36	73
23.2	40	72
25.3	40	79
24.3	40	73
17	41	74
25.8	41	84
24.5	41	73
21.8	42	79
20.6	42	77
26.7	44	89
22.3	45	89
20	47	85
17	47	83
20.7	47	86
17	49	83
18.6	54	92
Averages for 33 cases	39	77

Adult score=.51 of pre-adolescent score.

A non-selected group of fifteen grammar school pupils, aged 12.6 to 16.4 years, scored from 32 to 70 points. The numbers are not large enough to supply safe age-norms.

Twenty-five working children, aged 15 to 16 years, obtained scores from 24 to 72.

A group of eighty college students and professionally trained persons yields a range of 64 to 98 points.

The following averages supplement the ranges already given:

Average score for fifteen working children, 15 to 16 years, 45 points.

Average score for fifteen nurses, 52 points.

Average score for fifteen college students, 86 points.

Average score for fifteen physicians and teachers, 90 points.

Our results indicate that Tests 12 and 14 are unsatisfactory in their present form and should be modified for use in an adolescent-adult point scale.

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Address.

THE TRAINED NURSE.*

BY GASTON TORRANCE, M.D., BIRMINGHAM, ALA.,

Surgeon to the Birmingham Infirmary.

THE establishment of training schools for nurses arose from the experience of army hospitals in European wars, especially the Crimean.

In France the nursing is chiefly in hands of the Catholic sisters. In Russia sisters of mercy have done the nursing since the Crimea; the same conditions exist in Italy. In 1883 "St. Paul's Home for trained English speaking nurses" was started in Rome by a few graduates of American and English schools.

In Germany many Protestant and Catholic systems have become famous. "The Institute of Deaconesses" was established at Kaiserwerth in 1836—in after years, Miss Nightingale completed her early training here, which made her such a successful advocate of thorough instruction in nursing.

In Vienna the nursing is done by sisters. In England, female nurses in hospitals are mentioned as early as 1760, and in 1791 they were endorsed by the governors of the London Hospital.

In 1860 a training school was founded at St. Thomas' Hospital (London) through the generosity of Miss Nightingale. The New York State Charities Aid Association made special study of this school, and it was taken as a model for Bellevue Hospital School, as well as for most of the other American schools.

In the latter part of the eighteenth century, Dr. Valentine Seaman gave a course of twenty-six lectures to the nurses of the New York hospitals, relating to nursing and hygiene. These lectures were published in 1800, and were the first recorded effort for the improved training of nurses in the United States. In Philadelphia in 1838 the Society of Friends formed a nurses' society which raised the standard of nursing and relieved the Catholic Sisterhood of doing the work alone. In 1873 training schools were established almost simultaneously in New York, New Haven and Boston, and from this year dates the impetus to the improved nursing system which has led to the establishment of training schools in almost every city in this country.

An effort was made to raise the standard, but, as the superintendents of the training schools came from these schools, the task was a difficult one. During the World's Fair, among the many congresses held was one of trained nurses, which was a subsection of the hospital section of the Congress of Associated Charities. This was the first time in the history of nursing in America that the nurses had come together as members of the same profession. The most important result of this meeting was the organization of the "American Society of Superintendents of Training Schools for Nurses," and the progress made since this time is due chiefly to the efforts of this society. To encourage interest and enthusiasm, alumnae associations were organized. Two years later thirty-one were reported, and steps were taken to form a national association, which held its first meeting in April, 1898, as "The associated alumnae of the United States and Canada." Since this time the membership has steadily increased. The next important step was the establishment of a nursing journal, and in October, 1900—two years after the organization of the association—*The American Journal of Nursing* was started under its auspices.

Opportunities are constantly opening up by which the graduate nurse can do her share in bettering social conditions. Splendid work has been done in New York by the "Nurses' Settlement," which is located in the densely populated East Side. "It aims, in addition to nursing the sick poor, to be to the neighborhood all that the College Settlements stand for."

More and more attention is being paid to instruction in invalid dietary. In some schools a teacher is engaged in this branch alone, and the pupils take a regular four to six weeks' course of study in food constituents and the preparation and serving of infant diet. The superintendents are realizing the importance of giving more detailed and systematic teaching in the ethics of nursing—the constant observance of which is just as important to the graduate as that she should be an expert in practical work.

"The women of today *have not*, as a rule, a thorough, systematic, practical knowledge of the details of housekeeping so essential for one who expects to become a good nurse and a good manager in the ward."

For these nurses an attempt has been made in one school in Scotland, in one school in London, and one in the United States, to give the probationers, before entering the wards, a so-called preliminary course in household economics, in the theory of their work, and in the elements of nursing.

* Read before the 1916 graduating class of nurses of the Birmingham Infirmary.

Medical Progress.

RECENT PROGRESS IN PSYCHIATRY.

BY HENRY R. STEDMAN, M.D., BROOKLINE, MASS.

INSOMNIA AS A CYCLIC PSYCHOSIS.

BALLET[1] excludes from consideration the insomnia of the aged and of arteriosclerosis and autointoxication, discussing in particular a type of intermittent insomnia characterized by a dread of being unable to sleep, an actual phobia with anguish. This is accompained by a train of symptoms including a certain depression during the day, a depression of mood, not physical, reduced inclination for work, and a tendency to be worried and distressed. The insomnia of this type comes on abruptly, complete, without known organic cause, and persists practically complete as it began. The patients are liable to relate that they have had, in the past, periods of depression or of distress or ideas of suicide. Ballet argues that these attacks of insomnia may be regarded as the manifestations of a periodical psychosis. In treatment he warns that laudanum is of little use in insomnia of this type; it is inclined to yield more readily to chloral, amylene hydrate, or hypnotics of the veronal series. Baths up to the waist at 28° C. for five minutes just before getting into bed, are often useful. He adds that we can attenuate the manifestations of a periodical psychosis and perhaps relieve the dread and insomnia, but no means are known for shortening it or postponing its recurrence.

SYPHILITIC PSYCHOSES WITH MANIC-DEPRESSIVE SYMPTOMS AND COURSE.

Barrett[2] says that the routine application of the Wassermann test and the study of the cerebrospinal fluid have shown that, apart from diseases of well-marked syphilitic pathology, there are cases which clinically course in ways not usual for the syphilitic types of psychoses, although showing serologically the pathologic changes of the disease.

A considerable number of cases may show positive Wassermann reaction in the blood and no pathologic condition of the cerebrospinal fluid. The majority of these are instances of more or less marked types of non-syphilitic mental disorders, which show an incidental constitutional syphilis. A smaller number are forms of syphilitic psychoses of a type other than general paralysis.

Other cases show syphilitic changes in the blood and cerebrospinal fluid similar to those found in general paralysis, but in their clinical symptoms and course seem to stand apart from this disease and present interesting points for differential diagnosis. Such are the cases which course clinically with the symptomatology and cyclothymic variations of manic-depressive insanity. The occurrence of this type of case has occasionally been commented on in the treatises on general paralysis, in which they have been usually regarded as combinations of general paralysis and manic-depressive insanity.

Clinically, certain cases in their symptoms resembled common types of manic-depressive insanity in which there is no evidence of syphilis. In the majority of these, organic neurologic disturbances were not prominent. In only two cases was memory disturbance at all marked. In but one, a fatal case, was there any general mental deterioration.

It seems justifiable to regard cases of this type as coincidental occurrences of manic-depressive types of reaction, and syphilitic diseases of the type of general paralysis.

The relation between the two disorders might be made clearer if one knew how far back in the course of the disease the serologic pathology became manifest. In only one case were there any prominent neurologic disturbances, such as attacks, speech defects, ataxia or reflex abnormalities noted during the early phases of the clinical course. In some of the cases there were signs of manic-depressive tendencies before the infection with syphilis. In two cases the first attack of manic excitement occurred a few years after the infection. It thus seems impossible to establish the infection with syphilis as the direct cause of the mental symptoms.

The question of combined psychoses has always been of interest in psychiatric discussions. This interest has lessened as the psychiatric point of view has been turning away from nosologic distinctions, and toward regarding many of the functional psychoses as individual types of reaction to personal experiences. In this way the mental symptoms are related to structural brain disturbance only so far as the latter introduces difficulties in nervous functioning and makes it possible for tendencies which have resulted from a pathologic nervous constitution, and the effects of personal experiences and mental habits, to assert themselves.

Hereditary instances of mental diseases in the families of these patients were present in seven of the nine cases.

Aside from the structural influence of a syphilitic process of the nervous system in producing disease, there is the possibility of a psychogenic mental disturbance which may develop in the individual who is confronted by the new and distressing problems which come to one who has acquired syphilis. It is not uncommon for functional and mental disturbances to occur in the early stages of syphilis, the only explanation for which are the fears consequent upon infection.

Some prognostic information may be drawn from the analysis of even the few cases cited in the article. Four of the patients, after the serologic examinations had shown the presence of a syphilitic process in the central nervous system, made improvement in their mental symptoms to

a degree that permitted them to return to their homes, and some to take up their business again in an efficient way.

ALZHEIMER'S DISEASE AND ALCOHOLISM.

Lambert[3] cites two cases, both men of 49, without significant heredity or make-up, but with a history of alcoholism. In each there developed slowly and insidiously, without attacks of unconsciousness or convulsions, a most profound dementia. The onset was first evident in inattention, indifference and absent-mindedness; later became more manifest in declining efficiency, progressive impairment of memory, retention, grasp and poverty of thought, followed by aimless, restless, foolish behavior and increasing mental dilapidation which went on apace toward an apathetic dementia, incapacity in comprehension, to talk, to walk and bedfast state, in which the patient muttered and mumbled and fussed and fumbled, and pulled at his bedding, wet and soiled himself, chewed a little and gulped what was put in his mouth, and vegetated for a time, and died like a decerebrated animal. Among the more striking symptoms in these cases were the outstanding symptoms of agnosia, aphasia, and apraxia. In two other patients, one 61 and the other 71, there likewise developed gradually without cerebral irritation, apoplexy or paralytic phenomena, evidences of deterioration. In addition to the diffuse nonsystemic symptoms of dementia, there stood out in the first case a diffuse aphasic or paraphasic disorder, largely of a sensory type at first, later of both a sensory and motor transcortical type. There was little motor or ideatory apraxia in this case. In the second case there was also considerable paraphasia and jargonaphasia, but more prominent were the symptoms of motor, more particularly ideatory, apraxia. There was absence of objective paralyses, although in the second case a right hemianopsia was suspected and, anatomically, properly so.

RÔLE OF HALLUCINATIONS IN PSYCHOSES.

Harrison[4] has made a careful statistical study of 514 cases. He found that hallucinations are among the commonest of symptoms met with in the insane, occurring in approximately 40% of the cases. Of the various types, those of hearing are most frequent, these occurring either separately or combined in 90% of the cases with hallucination. Next in frequency are those of hearing and sight combined, and then come visual disturbances alone. The content of the hallucinatory percepts were not characteristic for any particular psychosis. Visual disturbances seem especially peculiar to the catatonic precox group. Hallucinations are common in dementia precox, occurring in practically all the cases. On the other hand, they are rare in the manic-depressive group, seldom, if ever, occurring typically. This fact is of diagnostic importance. Hallucinations are rare in arteriosclerotic dementia and senile dementia, occurring in approximately 20% of the cases. Hallucinations are rare in sane persons, even though they be of a psychopathic make-up.

ACETONE IN URINE OF ACUTELY INSANE.

In necropsy material, Mills and Wearne[5] noted the regular appearance of casts and albumin prior to death, and post mortem they found various kidney changes, which, at least in some cases, seemed the most important pathologic finding. It, therefore, seemed that a kidney irritant or toxin was at work. The authors then found that the urine in these acute cases often contained acetone and that the acetone appeared before the casts and albumin. Treating these cases from a nephritic viewpoint was entirely unsuccessful, but from a gastro-intestinal auto-intoxication standpoint, they had very fair success. The appearance of acetone indicates a metabolic disorder, probably dependent on a gastro-intestinal condition, and also an inherent personal fault. Its appearance shows that the toxemia is reaching a stage when ill effects on the kidneys may be expected. These will be shown simultaneously, or, in a few days, by the appearance of casts and albumin, and there is apparently some danger of the kidney change becoming chronic. Patients treated along expectant and symptomatic lines died. Treatment to improve renal functions, including diuretics, stimulants, baths, packs, cathartics, rectal irrigations, hypodermoclysis, etc., failed. Alkaline treatment, such as the administration of large amounts of soda, also gave very little benefit. The treatment eventually resolved itself into: free catharsis; free washings of the lower bowel by enemas or, preferably, saline irrigations; forcing fluids as much as possible; forced feeding with skim milk and cereals, usually oatmeal gruel, and addition of either cane sugar or lactose; use of intestinal antiseptics, preferably either thymol or betanaphthol; stimulation where necessary; sponging for temperature, and other routine measures as in any serious illness.

PARESIS IN PRE-WASSERMANN DAYS.

Data are presented by Lowrey[6] dealing with 58 cases diagnosed with more or less certainty as paresis at Danvers between May, 1898, and May, 1912 (prior to the routine use of the Wassermann test). Of 13 cases in which paresis was not excluded, 1 is a paretic and 1 remains unclassed. Of the other 11, 4 are cases of dementia precox, and the diagnoses were long ago established. Of 17 cases in which paresis was the probable diagnosis, not one is a paretic. Ten are cases of dementia precox. Of 28 cases in which paresis was thought to be certain, 8 are paretic and 2 more are probably so. Fourteen cases can definitely be classed elsewhere, and 7 are cases of dementia precox. The other four cases are not paretic, but cannot be classed. The sero-

logic investigation of cases in which paresis is suspected is an absolute requisite for establishing a correct diagnosis. Had the Wassermann and spinal fluid tests been known at the time these patients were presented for diagnosis, paresis might have been immediately excluded or confirmed. Clinical observations over a sufficient length of time will correct the diagnosis in the majority of cases, but this method has very obvious disadvantages. Lowrey points out that his study presents a basis for the conclusion that dementia precox is often extremely hard to differentiate from paresis. A case of dementia precox may present unequal pupils, exaggerated knee jerks, etc., and it is here that laboratory tests are of great aid.

MENTAL SYMPTOMS COMPLICATING ACUTE TETANUS DURING TREATMENT BY PHENOL INJECTIONS.

In the case cited by Everidge[7] the convulsions were controlled by chloral and bromide. Whenever he was allowed to come round at all the spasms became intense. As the spasms became less severe, he was treated less energetically with hypnotics. The mental condition now began to show a marked change. He became extremely restless and passed into a state of low, muttering delirium, with visions and hallucinations—a condition closely resembling delirium tremens. From time to time he attempted to get out of bed, and had to be forcibly restrained. This lasted for five days, during which time he had incontinence of urine and feces. Chloral and bromide, which had previously quieted him, had now no effect. After four four-hourly doses of half a dram of paraldehyde, however, he settled down into a quiet sleep. After nine days the mental condition appeared normal, but on the tenth day there was a bad relapse. This lasted acutely for three days, but it was not until ten days later that the mental state again became normal.

JUVENILE DELINQUENTS.

Collin[8] has examined large numbers of delinquent minors. He found that about 10% were grossly abnormal, epileptics, perverts, etc., while about 30% were normal and owed their delinquency to their environment. About 60% were abnormal from the physician's standpoint. Some of them showed signs of an inherited toxic-infectious taint which had interfered with their normal development in early infancy. Those in this group require treatment. These same influences affected the children in another group, but did not entail anomalies in physical development. There is not much chance for improvement by therapeutic measures in this group. In another group there were mental and physical signs of injury from some infectious disease in early childhood. The fourth and last group was composed of minors with evidence of gastro-intestinal trouble or tuberculous infiltration. Their psychic excitation is closely connected with their organic condition. He says in conclusion that it is only by thus studying the past that we can appreciate the present status of the child and estimate the outlook for his future. Inversely, every anomaly of development in a child from one to three years old, and every persisting change in the character at that age, should call and hold the attention of the physician, so that rational treatment may be applied while there is still time.

ABDERHALDEN TEST.

The result of Schwartz's[9] experience with the Abderhalden reaction in 145 sera and 22 spinal fluids from mental cases were very disappointing. They were so irregular that he concludes the method is of no use in diagnosis and of no assistance in explaining the etiology of psychoses. For example, in 38 cases of dementia precox there was absolutely no uniformity of reaction. Several male sera reacted to ovarian extract and female to testicular. The method, too, is much too complicated for clinical laboratory.

INTELLIGENCE TESTS.

Gregor[10] employs the definition method in intelligence tests. Forty selected words in common usage are given to the individual, and he is asked for a definition of each. The time required, the degree of correctness of the definition and the ability of the person to express himself are observed. The method certainly has much advantage in simplicity, quickness and uniformity over any other method. The author claims for it that it is quite sufficient to disclose intellectual defect, to measure its intensity, and also to gain an insight into the mental processes of the individual and their disorders. The scheme of age measurement is not given, but can be easily arrived at. A large number of illustrations is given.

PSYCHOSES ASSOCIATED WITH PELLAGRA.

One of the most common psychoses associated with pellagra, according to Sandy,[11] occurring twenty-eight times in 100 cases, is the infective exhaustive psychosis. Manic-depressive insanity occurred sixteen times. There were four cases of symptomatic depression, fourteen of dementia precox, fifteen cases of senile psychosis or senile dementia, three epileptic imbeciles or idiots, three cases of constitutional inferiority with episodes of some kind, and three were not insane.

TREATMENT OF TABES AND GENERAL PARESIS.

Holland[12] declares that in spite of the progress realized in the treatment of syphilis in the last few years—or possibly because of it—the physician's task is no lighter than formerly, but more responsible and with new problems to solve. Treatment of syphilis in the primary and

secondary stages must be continued until the Wassermann reaction has been negative for some time and the spinal fluid gives negative findings. The patients must be reëxamined every year or so for ten years. In eighty-five cases of tabes or general paresis in his services of ninety-three cases of various other forms of cerebrospinal syphilis, since 1903, only one patient was known to have had systematic intermittent treatment through two years. In forty-nine others treatment had been exclusively symptomatic The details of treatment were not known for the other patients. Courses of nucleinic acid, tuberculin and salvarsanized serum in tabes or general paresis proved absolutely useless. The cerebrospinal fluid usually gave a negative response finally to the four usual tests, and the symptoms from meningeal involvement retrogressed, but no improvement was apparent in the clinical picture of the tabes or paresis. The only hope, he reiterates, is to start treatment in an early stage, but when the patient becomes alarmed about his condition and applies for treatment, it is then too late for it. It is possible that certain strains of the pale spirochetae have a special affinity for the central nervous system. This view is sustained by the cases in which tabes or paresis develop in persons infected from the same source, or in husbands and wives. He has had a few cases of this kind, but he thinks a constitutional predisposition is more likely. In one of his families, two brothers died at 43 and 48 of general paresis, and a third is insane. In another family one man of 50 died of general paresis, his brother of 41 is being treated for cerebral syphilis which developed seven years after the infection, and a third brother has tabes.

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Book Review.

The Treatment of Diabetes Mellitus. By Elliott P. Joslin, M.D. Philadelphia and New York: Lea and Febiger. 1916.

It is a very pleasant task to review Dr. Joslin's book. One can have nothing but admiration for the arrangement, the method of presentation and the conciseness. The book is based on his own personal observations of over 1000 cases, and reflects the accumulated wisdom of that experience. Unlike many specialists Dr. Joslin makes his subject clear, not obscure, simple, and not difficult. While perhaps not stated in so many words, there is running through the book his mission, namely—how to instruct the medical profession to treat diabetes more effectively. He brings to the medical profession much encouragement because the introduction of the so-called "Allen Treatment of Diabetes" and the experience with that and other advances has brought about a marked improvement in the effectiveness of the treatment of diabetes. There is nothing that the internist or general practitioner might want to know concerning the treatment of diabetes that is not presented in this admirable book. The first section takes up statistical studies upon the cause and treatment of diabetes.

The second section deals with important factors in the treatment of diabetes; the third section discusses the examination of the urine, blood and respiration in diabetes. In this chapter it will be a relief to many practitioners to know that Dr. Joslin advocates as necessary only the simplest possible tests. He is not ready yet to accept the estimation of blood sugar, for example, as an indispensable part of the treatment of diabetes. In his experience he has found that the glycosuria gives an accurate index of the disease and is sufficient to control therapy.

Section four deals with the diet in health and in diabetes and inevitably makes a strong case for accurate diets based on a knowledge of food values.

Section five takes up treatment. He discusses and practically discards drugs. The relative value of all the special dietetic measures is fully elucidated. Of great interest are his views on physical exercise in diabetes. Intensely practical is his discussion of the treatment of the diabetic in impending coma and before surgical operations.

Section six is entitled "Aids in the Practical Management of Diabetic Cases" and discusses from the wealth of his own personal experience what a diabetic should know and gives actual illustrative diets and charts.

Section seven takes up foods and their composition and in addition to simplified food tables gives suggestions as to menus and recipes for special foods.

It is a noteworthy fact that Dr. Joslin has been able to compress his book into about 400 pages.

It is indeed rare that one is privileged to recommend so whole-heartedly such a book to the medical profession.

THE BOSTON
Medical and Surgical Journal

Established in 1812

An independently owned Journal of Medicine and Surgery published weekly under the direction of the Editors and an Advisory Committee, by the BOSTON MEDICAL AND SURGICAL JOURNAL SOCIETY, INC.

THURSDAY, APRIL 19, 1917

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An editor will be in the editorial office daily, except Sunday, from twelve to one-thirty p. m.

Papers for publication, and all other communications for the Editorial Department, should be addressed to the Editor, 126 Massachusetts Ave., Boston. Notices and other material for the editorial pages must be received not later than noon on the Saturday preceding the date of publication.. Orders for reprints must be returned in writing to the printer with the galley proof of papers. The Journal will furnish one hundred reprints free to the author, upon his written request.

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VACANCIES IN THE MEDICAL CORPS OF THE UNITED STATES ARMY.

As a result of the reorganization of the army there are a great many vacancies in the Medical Corps and for some years to come all qualified candidates will be assured of appointment. One year of service in a hospital is required as one of the qualifications for appointment. Promotion to the grades above that of captain is likely to be much more rapid than has been the case heretofore. Accepted candidates are appointed as first lieutenants in the Medical Reserve Corps and sent to the Army Medical School in Washington for a course in military subjects. Pay begins at once at the rate of $2000 per year, with housing, light, fuel and traveling expenses in addition. Rapid increase of pay occurs with length of service and promotion. The service offers young medical men an excellent career with a dignified social, official and professional status; an assured income during life; opportunity to travel to distant lands; and facilities for scientific research or development along special lines.

Those who contemplate adopting the medical corps of the army as a career should make their decision at once. Since large numbers will be admitted in the next year or two, the advancement to the higher grades of those who come in first will be decidedly more rapid. Examinations for entrance to the corps will be held on May 5, June 5 and July 9.

Further information in regard to the service and application blanks may be obtained from Lieutenant-Colonel W. P. Chamberlain, Medical Corps, who will be glad to discuss the service with those interested. Colonel Chamberlain has an office at the Harvard Medical School, Building B 2, Room 322, with telephone communication, Brookline 2380. When not at this office he may be communicated with at Fort Banks, Winthrop, Mass., telephone, Winthrop 1544.

THE RÔLE OF STATE SANATORIA, COUNTY TUBERCULOSIS HOSPITALS AND MUNICIPAL TUBERCULOSIS HOSPITALS IN MASSACHUSETTS.

IN accordance with the County Tuberculosis Hospital Law, Chap. 286, Acts of 1916, passed last year, the County Commissioners all over this State, with the exception of Hampshire County, already provided with an excellent county sanatorium, are busy in selecting sites and drawing up plans and specifications for the new hospitals required by this act. When these institutions are built, the State of Massachusetts, which even now furnishes better accommodations for its consumptives than any other state in the country, will be fortunate indeed in having such ample provisions for its citizens with pulmonary tuberculosis. There has been urgent need for institutions of this kind. Whereas in the larger communities, such as Boston, Cambridge, and Worcester, a local tuberculosis hospital can be run efficiently and at the same time economically, and may be looked upon as an absolute necessity, with the smaller cities and towns the case has been different. It has proved expensive and not always efficient for a community of 15,000 to 20,000 inhabitants to maintain a local tuberculosis hospital. The County Hospital Law, providing

accommodations for a large number of such smaller communities, does away with the disadvantages which are inherent in the management and maintenance of a small institution.

When these new hospitals are built, the policy of the State of Massachusetts as far as tuberculosis is concerned will be somewhat as follows: Cities of over 50,000 inhabitants, required by law to maintain a tuberculosis hospital of their own, will be expected to care for all their advanced cases, many of their moderately advanced cases and all emergency cases, and others awaiting admission to a state or county institution. The county hospitals will care for the advanced and emergency cases coming from the smaller communities and the scattered rural districts. This will leave our state sanatoria to do the work for which they are really intended, *i. e.*, the cure and arrest of favorable cases of consumption, and not merely segregation, which, to a large extent, is all that they are doing at present.

The State Tuberculosis Commission, in charge of the four state sanatoria at North Reading, Lakeville, Westfield and Rutland, comprising practically 1000 beds, for some time past has been endeavoring to reserve these institutions for the curable cases of consumption. This has proved to be a difficult and well nigh impossible task. The letter, presented elsewhere in this JOURNAL, which this Commission has recently sent out to boards of health, tuberculosis dispensaries and others concerning this matter, requiring a second examination of every patient shortly before his or her admission, is a further effort to endeavor to weed out those cases which do not belong in sanatoria and which should be kept in local tuberculosis hospitals, near to their homes, families and friends. It is hoped that the medical profession of this state will see the reason for this action on the part of the Commission and will give full coöperation in this matter.

A DESIRABLE SURGICAL RESEARCH MEASURE.

IN the issue of the Philadelphia *Evening Telegraph* for March 24, 1917, is noted a desirable measure now pending before the legislature of Pennsylvania in the interests of surgical research. The practice of animal experimentation is officially recognized in Pennsylvania "for the promotion of biological science and the discovery of new methods of treatment in disease and surgery." No provision has hitherto been made, however, for the ways and means by which animals may be procured for laboratory purposes. This lack of provision creates temptation to the abduction of privately owned pet animals for laboratory purposes, a situation similar to that of body snatching prior to legislative enactments for the procurement of human anatomical material. To remedy this defect a bill has been introduced in the Pennsylvania legislature providing that "duly incorporated laboratories may obtain from the public pounds any or all animals which shall remain unclaimed by the owners in such pounds after the time provided by law for the redemption of the same by their owners." Such an enactment providing for the legitimate procurement of material for animal experimentation is a desirable surgical research measure and should be of value as well in assisting to obviate the opposition of certain persons to animal experimentation.

REGISTRATION OF PHYSICIANS.

IN spite of the editorial notice which appeared on page 511 of the issue of the JOURNAL for April 5, 1917, a majority of the physicians of Massachusetts failed on April 10 to register, in accordance with the requirement of the new law, with their city or town clerks. The purpose of this law is to prevent the entrance or continuance in medical practice, in any community, of unauthorized persons, calling themselves doctors. Like the Harrison and other anti-narcotic drug laws, it must be regarded as one of the apparently inevitable legislative annoyances to which legitimate and reputable physicians must be subjected in order to enable the control of disreputable persons operating under the guise of the medical profession. Duly qualified physicians who have failed to register under the new requirement are technically guilty of violation of the statute and are liable to fine. It is not expected, however, that the penalty will be enforced until after a reasonable time has elapsed. We pointed out in the JOURNAL of April 12 (page 545) that any physician whose original certificate is lost, destroyed, or otherwise unavailable, may obtain a new certified statement from the State Board of Registration in Medicine.

MEDICAL NOTES.

PUBLIC HEALTH IN NEW SOUTH WALES.—We have recently received (1917) the report of the Director-General of Public Health of New South Wales, published in 1916 by order of the legislative assembly of 1915 for the year ended December 31, 1914. It contains the usual material composing such reports, and presents a large amount of tabulated vital statistics. Several excellent colored charts represent the seasonal incidence of diphtheria, scarlet fever and typhoid. In comparing these with those of other countries, allowance must be made for the reversal of seasons in the southern hemisphere, where diphtheria reaches its maximum in May and June, and typhoid fever in March and April. The annual death rate of diphtheria has declined from 2.44 per thousand in 1886 to 0.11 in 1914. There are several full page plates of the principal hospitals in New South Wales, and several reports of investigational work on infectious diseases of animals and the prevention of typhoid fever and on tuberculosis and syphilis.

GUNSHOT WOUNDS OF THE PREGNANT UTERUS.—In the issue of the *Journal of the American Medical Association* for July 18, 1914, Dr. Lincoln Davis of Boston reported a case of gunshot wound of the pregnant uterus nearly at term, in which a living fetus was extracted at operation from the abdominal cavity. In a recent issue of *The Lancet* is quoted another similar case described by Drs. Saint, Goehlinger and Poiré.

"A woman, aged 33 years, in the sixth month of pregnancy, was taken to hospital. She lived in a town behind the British lines which was daily bombarded. While seated at her window a shell exploded in the street and wounded her in the lower abdomen. She was admitted three hours later. The abdomen was distended and a reaction of "peritoneal defence" was already marked on the right side. The uterus extended two finger-breadths above the umbilicus. The position of the fetus could not be ascertained by palpation because of the pain produced by examination. There was a wound of entry a little below and to the left of the umbilicus and one of exit 9 cm. away, two finger-breadths above the left crural arch. From each wound omentum projected. On palpation it was evident that the abdominal muscles were completely divided and that between the two wounds only a bridge of skin remained. Blood was abundantly escaping from the vagina. A digital examination was not performed. The pulse was 110 and good, and the general condition satisfactory. Operation was decided on. The bridge of skin between the wounds was divided and the usual median incision for laparotomy made below the umbilicus. This, with the wound due to the injury itself, gave a large triangular flap, with its summit at the umbilicus. A wound in the fundus uteri, 5 cm. long, was found running from the middle line downwards to the left and forwards toward the round ligament on that side."

The operation was successfully concluded and the patient reovered, but the fetus was not saved. It is not known whether other similar cases are recorded elsewhere in the literature.

WAR NOTES.

SITE OF BOSTON BASE HOSPITAL.—The Red Cross Base Hospital, which it was proposed first to establish in the Fenway, is now to occupy a part of the Common. The contribution of $10,000 expected from the Government for its maintenance is not forthcoming, and $25,000, necessary for its support, will be raised by popular subscription. The army can supply tents and possibly other equipment.

TWO CATHOLIC HOSPITALS FOR WAR SERVICE.—Cardinal O'Connell has offered to the United States Government the use of St. Elizabeth's Hospital in Brighton, with its entire equipment and staff, as a war hospital. The Cardinal has also made plans for the assistance of all the Catholic women of the diocese.

The services of the fifty Sisters of Charity of the Carney Hospital, South Boston, the staff of 115 nurses, and the hospital itself, have been offered to the Government for use when needed. This offer has been accepted through Dr. Leach, medical director of the navy.

RED CROSS BASE HOSPITALS IN BOSTON.—The personnel of the three Red Cross base hospitals in Boston has been selected from the staffs of the Peter Bent Brigham Hospital, the Massachusetts General Hospital and the Boston City Hospital. Dr. Harvey Cushing is director of the unit recruited from the Peter Bent Brigham Hospital and the Harvard Medical School, to be known as the Harvard Unit and officially designated as Base Hospital No. 5. Dr. Frederic A. Washburn is director of the Massachusetts General Hospital Unit, designated as No. 6, and Dr. John J. Dowling of the Boston City Hospital Unit, designated as No. 7.

Contrary to a somewhat prevalent impression, the hospitals from which these units are organized do not themselves become base hospitals. The personnel and equipment, which have been gathered by the Red Cross organization, are sent wherever they are needed in connection with military service.

Lieut. Col. J. C. R. Peabody, director of the American Red Cross Supply Depot, has equipped these three base hospitals at a cost of about $25,000 per unit. The Boston Metropolitan Chapter, American Red Cross, furnished the bed linen and hospital garments at a cost of $10,000 per unit. Surgical supplies have been furnished by the surgical dressings committee of the Massachusetts Branch of the National Civic Federation at a cost of $1100 for the three units.

ORGANIZATION OF ARMY MEDICAL SERVICE.—The army medical service in time of war is made up of three zones:

Zone 1—First Aid Service, located immediately back of the trenches, from which the wounded are sent to the field dressing stations, a little further back. Next come the evacuation hospitals, where the cases are classified for transfer to hospitals in the rear.

Zone 2—Red Cross base hospitals, which are so equipped as to give the same service as the sick or wounded would receive at any large first-class civil hospital.

Zone 3—The army general and civil hospitals, which receive wounded and sick, who are transferred from the base hospitals, as they become overcrowded, and convalescents who are able to travel but require further medical treatment.

Base hospitals are purely military units, organized at the request of the medical departments of the army and navy. In both organization and equipment they are too massive and too immobile for civilian relief work.

The standard Red Cross base hospital unit for army service provides for a hospital of 500 beds. A unit is made up as follows: medical officers, 23; dentists, 2; chaplain, 1; nurses, 50; nurses' aids, 25; male administrative personnel, 50; civilian employees, 10.

The highest medical talent in the country has placed itself at the disposal of the Red Cross in the formation of these units. All the medical men enrolled are given commissions in the Army Medical Reserve Corps, and the nurses are enrolled members of the Red Cross Nursing Service, which is the reserve for the Army Nurse Corps.

CONTINUED NEED OF FUNDS FOR RED CROSS.—In announcing the completion of the $50,000 emergency fund needed to furnish supplies for three Red Cross base hospitals organized in Boston, Mr. James Jackson states that there is a continued urgent need for funds to prepare the Red Cross to meet the demands that war will make upon it. There is a likelihood that two or more additional base hospitals will be organized in Boston, for which the Metropolitan chapter will be asked to furnish supplies.

The supplies for one of the base hospitals have already been completed and turned over to Col. J. C. R. Peabody, who is in charge of the Red Cross military supply Depot No. 1. The supplies for the other base hospitals are being completed and will be delivered in advance of the time promised, May 1. The efforts of the volunteer workers in the sewing branch will be devoted to creating a supply of hospital garments and other necessaries which may be used for a new base hospital, for replenishing the stock of the base hospitals as they are used up in service or for other Red Cross relief work.

Contributions received to date bring the total up to $53,714.23.

GERMAN CLUB OFFERS HOME.—The trustees of the New York Liederkranz Club, an organization of more than one thousand Germans, unanimously adopted resolutions offering the club's large building at 111 East Fifty-Eighth Street for use as a military hospital in case of need.

BOSTON CHAPTER, AMERICAN RED CROSS.—The Boston Metropolitan Chapter of the American Red Cross has announced itself in readiness for full service. In addition to furnishing the supplies for the three Red Cross base hospital units organized in Boston, the Chapter has provided itself with a supply of hospital garments. The offer of Mr. and Mrs. Walter Baylies of their ballroom in their home has been accepted and will be used for the educational department, and classes in surgical dressings will be held there.

HARVARD UNIVERSITY LABORATORIES.—Harvard University has offered to the United States Government for use in the war, the Jefferson Physical Laboratory and the Crufts Memorial Laboratory. The Jefferson Laboratory is one of the best equipped in the United States. The Crufts Memorial Laboratory is devoted entirely to wireless and radio experiments, and is surmounted by lofty wireless aerials. About one thousand members of the reserve officers training corps took the April examination in military science and tactics.

FIELD HOSPITAL IN BOSTON.—A site in the Fenway, opposite the Art Museum, has been proposed for a field hospital which will provide easy access to the Harvard Medical School and Peter Bent Brigham Hospital groups of buildings. This hospital will furnish an opportunity for valuable instruction to war doctors and nurses in preparation for any national crisis. Red Cross nurses will be given a chance at such a hospital to learn the workings of a base hospital by handling the occasional cases that would be sent there. An orthopedic base hospital on the top of Parker Hill will also be established as soon as possible.

WAR RELIEF FUNDS.—On April 14 the totals of the principal New England relief funds for the European War reached the following amounts:

Belgian Fund	$808,665.94
French Wounded Fund	217,162.31
Armenian Fund	174,119.05
French Orphanage Fund	92,489.79
Surgical Dressings Fund	82,014.47
Serbian Hospitals Fund	80,323.47
Boston Ambulance Fund	69,500.43
LaFayette Fund	26,195.03
St. George's Fund	17,283.47

BOSTON AND NEW ENGLAND.

TUBERCULOSIS HOSPITAL IN ADAMS.—Plans are being made for a tuberculosis hospital to be

erected by the town of Adams and the city of North Adams.

WESTERN MASSACHUSETTS HOMEOPATHIC MEDICAL SOCIETY.—The Homeopathic Medical Society of western Massachusetts held its annual meeting March 21 in Springfield and elected Dr. M. W. Conrow, of Springfield, president; Drs. Bina Seymour, of Springfield, and A. J. Lobdell of Winchester, N. H., vice-presidents, and Dr. E. U. Dillenback, of Springfield, secretary and treasurer.

NEW TUBERCULOSIS HOSPITAL.—The Essex County Commissioners have purchased twenty-five acres of land in Middleton, Mass., for the erection of a tuberculosis hospital.

STATE MEDICAL WORK.—Dr. Thomas F. Harrington, medical deputy commissioner of the State Board of Labor and Industries, in an address at Greenfield, Mass., is reported as saying that a great amount of coöperation existed between the employers and employees, as well as all public and private organizations, in securing observation of labor and health laws.

"During the year many new industries have arisen in the State. Several of these have dealt with the manufacture of substances connected with war supplies and have given rise to hazards to health and life of workmen that are entirely new to this country. During the year more than 40 new cases of poisoning by gases and fumes connected directly or indirectly with the manufacture of munition products have been reported, and there have been 13 deaths from these chemical compounds.

The Board created a set of rules and regulations for the prevention of these illnesses and deaths, that has resulted in practically eliminating the danger from these various processes of manufacture.

There were 116 cases of lead poisoning reported from various industries in which that chemical is used.

During the year more than 30,000 inspections and over 11,000 reinspections of different industrial establishments were carried out, and more than 12,000 orders for the correction of working conditions have been issued. Ten thousand of these orders have been complied with. Adequate toilet and washing facilities have been provided in 3344 establishments, and over 1000 establishments have been equipped with medical and surgical first-aid kits. One hundred and four minors were excluded from dusty trades and occupations extra-hazardous to minors. Four hundred and twenty-six places of dusty atmosphere have been equipped with ventilating and exhaust systems."

TUBERCULOSIS IN MASSACHUSETTS.—It was stated at the recent meeting of the Massachusetts Anti-Tuberculosis League that last year there were 5102 deaths from tuberculosis in the State and that there are probably about 30,000 persons ill with the disease. To care for these cases there are available 3351 beds, and there are needed between 5000 and 6000 beds. Dr. Eugene R. Kelley, director of the division of communicable diseases, State Department of Health, spoke of the law passed last year requiring counties to provide tuberculosis hospitals for communities under 50,000 inhabitants. He stated that the following cities with less than 50,000 inhabitants already have tuberculosis hospitals: Pittsfield, Chicopee, Fitchburg, Haverhill, Salem, Clinton, Brookline and Newburyport. And five counties, Barnstable, Hampshire, Dukes, Nantucket, and Suffolk, are exempt. Dr. Kelley said, of these five, two have hospitals, and in two the population is too small to require them to have hospitals. In Suffolk, Boston has a hospital, and the cities of Chelsea, Revere and the town of Winthrop must combine to maintain one. The county commissioners of Essex, Middlesex, Norfolk and Plymouth have already secured their sites and are planning building soon.

FIFTIETH ANNIVERSARY OF THE HARVARD DENTAL SCHOOL.—The fiftieth anniversary of the founding of the Harvard Dental School will be celebrated next November. A committee consisting of Dean Eugene H. Smith, the Administrative Board of the School, twenty members of the Harvard Dental Alumni Association, five from the Harvard Odontological Society, and three at large has been organized. The celebration will consist of addresses by men of large reputation, clinics, and social meetings.

Miscellany.

INFORMATION REGARDING THE CORRELATED ACTIVITIES OF THE COUNCIL OF NATIONAL DEFENSE AND THE ADVISORY COMMISSION, THE MEDICAL DEPARTMENTS OF GOVERNMENT AND THE COMMITTEE OF AMERICAN PHYSICIANS FOR MEDICAL PREPAREDNESS.

MEDICAL PREPAREDNESS.

UNDER existing conditions it is desirable that every physician, as well as every other loyal citizen of America, should be prepared to render active service to the Federal Government, remembering that the protection afforded by the Government has made it possible for its citizens to enjoy liberty, peace and prosperity.

The avenues through which the most effective service can be rendered by members of the medical profession have taken definite and concrete form. Briefly, the plan is that all medical activities should coöperate with the Council of National Defense.

It would seem desirable at this time to state explicitly just what the Council of National Defence and its various agencies are.

The Council of National Defence was created by Act of Congress, Aug. 29, 1916:

"SEC. 2. That a Council of National Defense is hereby established, for the coördination of industries and resources for the national security and welfare, to consist of the Secretary of War, the Secretary of the Navy, the Secretary of the Interior, the Secretary of Agriculture, the Secretary of Commerce, and the Secretary of Labor.

That the Council of National Defense shall nominate to the President, and the President shall appoint, an advisory commission, consisting of not more than seven persons, each of whom shall have special knowledge of some industry, public utility, or the development of some natural resource, or be otherwise specially qualified, in the opinion of the Council, for the performance of the duties hereinafter provided.....

That the Council of National Defense shall adopt rules and regulations for the conduct of its work, which rules and regulations shall be subject to the approval of the President, and shall provide for the work of the advisory commission to the end that the special knowledge of such commission may be developed by suitable investigation, research, and inquiry and made available in conference and report for the use of the Council; and the Council may organize subordinate bodies for its assistance in special investigations, either by the employment of experts or by the creation of committees of specially qualified persons to serve without compensation, but to direct the investigations of experts so employed."

A committee of distinguished physicians was asked to present to the President names of medical men suitable for membership on the advisory commission. Dr. Franklin H. Martin of Chicago was selected.

The following statement was issued by President Wilson on the night of Oct. 11, 1916, in announcing his appointment of the civilian advisory members of the Council of National Defence.

"The Council of National Defense has been created because the Congress has realized that the country is best prepared for war when thoroughly prepared for peace. From an economic point of view there is now very little difference between the machinery required for commercial efficiency and that required for military purposes.

"In both cases the whole industrial mechanism must be organized in the most effective way. Upon this conception of the national welfare the Council is organized in the words of the act for 'the creation of relations which will render possible in time of need the immediate concentration and utilization of the resources of the nation.'

"The organization of the Council, likewise, opens up a new and direct channel of communication and coöperation between business and scientific men and all departments of the government, and it is hoped that it will in addition become a rallying point for civic bodies working for the national defense. The Council's chief functions are:

"1. The coördination of all forms of transportation and the development of means of transportation to meet the military, industrial and commercial needs of the nation.

"2. The extension of the industrial mobilization work of the Committee on Industrial Preparedness of the Naval Consulting Board and complete information as to our present manufacturing and producing facilities adaptable to many sided uses of modern warfare will be procured, analyzed, and made use of.

"One of the objects of the Council will be to inform American manufacturers as to the part which they can and must play in national emergency. It is empowered to establish at once and maintain through subordinate bodies of specially qualified persons an auxiliary organization composed of men of the best creative and administrative capacity, capable of mobilizing to the utmost the resources of the country.

"The personnel of the Council's advisory members, appointed without regard to party, marks the entrance of the non-partisan engineer and professional man into American governmental affairs on a wider scale than ever before. It is responsive to the increased demand for and need of business organization in public matters and for the presence there of the best specialists in their respective fields. In the present instance the time of some of the members of the Advisory Board could not be purchased. They serve the government without remuneration, efficiency being their sole object and Americanism their only motive."

As indicated above, the Council of National Defense therefore consists of six members of the Cabinet as follows:

The Secretary of War, Chairman; the Secretary of the Navy; the Secretary of the Interior; the Secretary of Agriculture; the Secretary of Commerce; the Secretary of Labor.

The Advisory Commission of the Council of National Defense consists of seven civilians appointed by the President. The members of the Advisory Commission are as follows:

Mr. Daniel Willard, President of the Baltimore and Ohio Railroad, Chairman; Mr. Hollis Godfrey, LL.D., President of Drexel Institute, Philadelphia, Pa.; Mr. Howard E. Coffin, of Detroit (who is also Chairman of the Committee on Industrial Preparedness of the Naval Consulting Board); Dr. Franklin H. Martin, of Chicago; Mr. Bernard Baruch, financier, of New York; Mr. Julius Rosenwald, Vice-president of Sears, Roebuck & Company, of Chicago; Mr. Samuel Gompers, President of the Federation of Labor.

The two bodies meet in joint session at frequent intervals for the purpose of considering problems relating to national defense.

The executive activities of the Council of National Defense are coördinated and carried out through the medium of the Director of the Council of National Defense, Mr. W. S. Gifford, and the chiefs of the various departments represented by the members of the Advisory Commission. Dr. Frank F. Simpson is chief of the Medical Section of the Council of National Defense.

THE ADVISORY COMMISSION.

The organization of the Council and of the Advisory Commission provides that each member of the Advisory Commission shall gather about himself for the most effective coördination of the activities he represents, a committee or board consisting of representatives of governmental departments on the one hand, and civilian members on the other hand.

The Medical Committee, of which Dr. Franklin H. Martin is chairman, consists of:

William C. Gorgas, Surgeon General of the U. S. Army; William C. Braisted, Surgeon General of the U. S. Navy; Rupert Blue, Surgeon General of the U. S. Public Health Service; Colonel Jefferson R. Kean, Director General of Military Relief of the American Red Cross; Dr. William H. Welch, member of the National Council of Research; Dr. William J. Mayo, Chairman of the Committee of American Physicians for Medical Preparedness; Dr. Frank F. Simpson, Chief of the Medical Section of the Council of National Defense, and Secretary of the Committee of American Physicians for Medical Preparedness.

Many medical problems which have bearing upon the national defense are considered by Dr. Martin's Committee and by the Advisory Commission and the Council of National Defense before being put into action by the governmental departments concerned.

COMMITTEE OF AMERICAN PHYSICIANS FOR MEDICAL PREPAREDNESS—ITS COMPONENT PARTS.

National and State Committees.

In April, 1916, the national committee was appointed by the joint action of the presidents of the American Medical Association, the American Surgical Association, the Congress of American Physicians and Surgeons, The Clinical Congress of Surgeons of North America, and the American College of Surgeons. To that committee was delegated the responsible duty of formulating plans whereby the civilian medical resources of the United States might be ascertained and effectively coördinated for such purposes as might be required by the Federal Government.

The national committee organized, selected a chairman and secretary and an executive committee, and appointed a state committee of nine strong men in each state of the Union.

It is the fixed policy of this committee that all presidents and secretaries of the various state medical societies shall be members of their respective state committees during their incumbency in office. From the first it was contemplated that at the proper time the organization of the committees would be perfected in each county of the country. That time has now come and county committees are being rapidly organized.

In each instance the state committees are expected to select the county committees and to supervise their formation.

Name and Personnel of County Committees.

It is the fixed policy of the Committee of American Physicians for Medical Perparedness that the various important medical interests and activities of each county shall be represented on the county committees. This is done for the purpose of coördinating the important interests and activities so that the medical profession of the nation may present a compact and effective organization for the purpose of aiding effectively in the national defense. In order that this plan may be carried out with uniformity and precision throughout the country, the various state committees have been requested to have all county committees bear the following distinguishing name, to wit, The Auxiliary Medical Defense Committee of ..... County in ..... State. The state committees have also been requested to provide that the county committees shall include the following in their list of members:

1. All members of National Committee of the Committee of American Physicians for Medical Preparedness, resident in the individual county.
2. Members of the State Committee resident in or near the individual county.
3. Representatives of the U. S. Army, resident in the individual county.
4. Representatives of the U. S. Navy resident in the individual county.
5. Representatives of the U. S. Public Health Service resident in the individual county.
6. Representatives of the State Board of Medical Examiners residing in the individual County.
7. Representatives of the State or City Public Health Service.
8. Ranking medical officer of the National Guard.
9. President and Secretary of the local Medical Officers' Reserve Corps Association, if there should be such an organization.
10. Deans of medical schools.
11. President and Secretary of the County Medical Society.
12. President and Secretary of any other important medical societies.
13. Medical Director of the local Red Cross Units.
14. Other representative medical men.

Duties of County Committees.

From time to time specific duties will be assigned to the various state and county committees. These duties will be in accord with the policy of the Council of National Defense, and should be executed promptly and precisely by those who are called upon to coöperate in this manner with the Council of National Defense.

The committees will call to their assistance those who have been appointed field aides by their various state committees and such other physicians as they may desire to have coöperate with them.

Among the specific duties which the county committees are requested to perform at this time are the following:

First: That these committees coöperate with the National and State Committees of the Committee of American Physicians for Medical Preparedness in their efforts to gain needful information regarding the civilian medical resources of their own communities, and in their efforts to coördinate civilian medical activities for prompt mobilization in case of need.

Second: That they secure applicants:

(*a*) For the Army Medical Corps. If the President should call the full complement of troops already authorized by Congress, the Regular Army would need about 1200 additional medical officers. If a million men should be called, a corresponding increase would be required.

(*b*) For the Medical Officers' Reserve Corps. If war should come, 20,000 to 30,000 Medical Reserve officers should be enrolled.

(*c*) For the Naval Medical Corps which needs about 350 additional officers.

(*d*) For the Coast Defense Reserve Corps of the Navy. Several hundred high-class reserve medical officers are desired.

(*e*) For the National Guard, such numbers as

may be required to bring your local National Guard to full strength.

In the preparation for national defense the first thing needed will be medical officers.

Physicians recommended for such service should be of the highest type. They should be free from suspicion of addiction to drugs or drink.

Medical officers who go to field duty should, by preference, be under the age of forty-five.

Third: That they coöperate, individually and collectively, with the medical department of the Army, Navy and Public Health Service, and with the Council of National Defense.

Fourth: That they coöperate with the Red Cross in their efforts to bring that organization to the highest point of efficiency.

COMMITTEE OF AMERICAN PHYSICIANS—ACTIVITIES ACCOMPLISHED AND IN PROGRESS.

On the twenty-sixth of April, 1916, the Executive Committee of the Committee of American Physicians tendered the services of the committee to the President of the United States. He expressed himself as being pleased with the patriotic tender of services and regretted that existing laws did not permit the acceptance by the Federal Government of gratuitous services, but stated that the matter would be referred to the Secretary of War and the Secretary of the Navy for the purpose of devising plans by which the good offices of the medical profession could be accepted and utilized to best effect by the Federal Government. He further stated that the plans would be referred to the Committee of American Physicians for comments and suggestions. The Executive Committee was permitted to make suggestions regarding the bill creating the Council of National Defense.

During the last year this Committee and its various subsidiary bodies have been actively engaged in formulating and carrying out various activities in conformity with the general plans for national defense, which have been undertaken by the Federal Government.

The splendid work done by the various state and other committees was of such extent and value that the Council of National Defense at its first meeting requested the Committee of American Physicians to continue their various activities under the guidance of the Council of National Defense, and asked the Secretary of the Committee of American Physicians to act as chief of the Medical Section of the Council of National Defense. Since that time the various activities have gone forward with renewed energy.

Some of the activities which have either been completed or are well under way, follow:

1st. Some 20,000 medical men selected from all parts of the country have been classified according to the training and the kinds of work which they do best.

2nd. An inventory of hospitals and other medical institutions is well under way.

3rd. It has been the fixed policy of the Committee of American Physicians to aid the American Red Cross in bringing its medical department to the highest point of efficiency. With that object in view, and in order to foster the spirit of coöperation, the members of the National Committee of the Committee of American Physicians accepted invitations to become members of the national committee of the medical department of the American Red Cross. In order further to promote the harmonious coöperation of the two organizations, most of the members of the various state committees of the Committee of American Physicians were also made members of the state committees of the American Red Cross. The various county committees will also be expected to coöperate in carrying out the plans of the two organizations.

4th. The establishment of military training for senior medical students in a large percentage of the high grade medical schools of the country.

5th. The establishment of more effective military training for hospital groups for members of the Medical Officers Reserve Corps, for dental students, and others.

6th. The appointment of a Committee for the Standardization of Medical and Surgical Supplies and Equipment. The purpose of this work is to designate a list of articles essential to the successful conduct of civilian and military medical and surgical activities so that in the event that it should become necessary to curtail production, all of the energies of the drug and instrument makers would be devoted to necessary articles rather than to those which are desirable but not essential. On this Standardization Committee are representatives of the Army, the Navy, the Public Health Service, the Red Cross, the Council of National Defense and a number of the most distinguished members of the various specialties of civilian medicine. In their work of coördination and standardization this Committee will take council with the manufacturers of the various supplies under consideration.

7th. Much valuable information supplied by medical and other observers who have worked in the war zones of Europe is being gathered and classified.

8th. The Presidents of important national medical organizations of the country have been requested to suggest to the medical section of the Council of National Defense the kinds of work which members of those organizations are best fitted to perform, and to suggest plans whereby their activities and resources might be utilized to best advantage. This request does not contemplate an inventory and organization of these resources. The purpose is that having received suggestions offered by the various organizations, those suggestions will be maturely considered and such as conform to the plans of the Council of National Defense and can be utilized to advantage, will be adopted. The various organizations will, in that case, be requested to coöperate fully and promptly in perfecting the plans of the Council of National Defense.

The foregoing memorandum embodies only a very small percentage of the problems now under consideration. It is neither wise nor desirable, however, too present them in detail at this time.

Correspondence.

REEXAMINATION OF TUBERCULATES.

Boton, April 4, 1917.

Mr. Editor:

As you are aware, the waiting list for patients applying for admission to our state sanatoria at North Reading, Lakeville, Westfield and Rutland, is usually a very long one. It is manifest, therefore, that the condition of many patients at the time a vacancy occurs for said patient may differ radically from his

condition as stated on the application blank. In order, therefore, to help reserve the Rutland Sanatorium for really incipient and favorable cases, and to help in making the North Reading, Lakeville and Westfield Sanatoria real sanatoria in fact as well as in name, by preventing the admission of far advanced and progressive cases, this Board, at its last meeting, held March 6, 1917, passed the following vote:

Voted, That a second examination of every patient applying for admission to one of the Massachusetts State Sanatoria be required after the receipt of the "First Notice" that the patient's name is nearing the head of the waiting list, and that a report of said examination be sent to the office of the Board of Trustees by the patient's physician, before a second notice is sent and the patient definitely assigned to a sanatorium; with the following exception, that no such re-examination is required in the case of patients whose names are reached within one month of the time of filing the application.

The Board feels very sure that you will see the wisdom of this regulation and earnestly asks your co-operation in seeing that such re-examinations are made of patients under your care and supervision. It is only in this way that our state institutions for consumptives can be made to fill their real purpose, as sanatoria for favorable and curable cases of pulmonary tuberculosis.

Very truly yours,

JOHN B. HAWES, 2D, *Secretary.*

NOTICE.

UNITED STATES CIVIL-SERVICE EXAMINATION.

ASSISTANT CURATOR, DIVISION OF MEDICINE (MALE).

The United States Civil Service Commission announces an open competitive examination for assistant curator, Division of Medicine, for men only, on May 2, 1917. A vacancy in the National Museum, Washington, D. C., at a salary ranging from $1,500 to $1,800 a year, and future vacancies requiring similar qualifications will be filled from this examination, unless it is found in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion. Certification for filling the higher salaried positions is made only from those attaining the highest average percentages in the examination.

The duties of this position will be the identification, classification, and labeling the specimens exemplifying (*a*) the history of medicine, (*b*) materia medica, (*c*) pharmacy, (*d*) public hygiene, and the planning and installation of exhibits illustrating these groups.

Statements as to education and experience are accepted subject to verification.

Applicants must not have reached their fortieth birthday on the date of the examination.

Applicants must be examined in the State or Territory in which they reside and have been actually domiciled in such State or Territory for at least one year previous to the examination. The county officer's certificate in the application form must be executed.

Applicants must submit to the examiner on the day of the examination their photographs, taken within two years, securely pasted in the space provided on the admission cards sent them after their applications are filed. Tintypes or proofs will not be accepted.

This examination is open to all male citizens of the United States who meet the requirements.

Applicants should at once apply for Form 1312, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C. Applications should be properly executed, excluding the medical certificate, and filed with the Commission at Washington in time to arrange for the examination at the place selected by the applicant. The exact title of the examination as given at the head of this announcement should be stated in the application form.

APPOINTMENTS.

DR. FRED BAILEY has been appointed to fill the vacancy made by Dr. David D. Brough's appointment to Deputy Health Commissioner of the City of Boston.

DR. WILLIAM R. OHLER has been appointed to succeed Dr. C. L. Overlander, recently resigned from the pathological division of the Boston City Hospital.

SOCIETY NOTICES.

SUFFOLK DISTRICT MEDICAL SOCIETY.—The annual meeting will be held at the Boston Medical Library, 8 The Fenway, on Wednesday, April 25, 1917, at 8.15 P.M.

Business: Reports of the Officers and Committees of the Society.
Election of Officers.
Incidental Business.

The paper of the evening will be by Dr. Frederick C. Shattuck and Dr. Charles H. Lawrence, Jr., "Pneumonia at the Massachusetts General Hospital from 1889 to 1917" (illustrated by lantern slides).

Refreshments after the meeting.

PAUL THORNDIKE, M.D., *President.*
DAVID CHEEVER, M.D., *Secretary.*

NEW ENGLAND PEDIATRIC SOCIETY.—The forty-ninth meeting of the New England Pediatric Society will be held in the Boston Medical Library, Friday, April 27, 1917, at 8.15 P.M.

The following papers will be read:

1. Treatment of Eczema.
Charles J. White, M.D., Boston.
2. Mechanisms of Defense and Serum Treatment of Poliomyelitis. Harold L. Amoss, M.D., New York.

Discussion opened by Eugene R. Kelley, M.D., Boston, Francis W. Peabody, M.D., Boston, and Edwin H. Place, M.D., Boston.

Light refreshments will be served after the meeting.

MAYNARD LADD, M.D., *President.*
RICHARD M. SMITH, M.D., *Secretary.*

SUFFOLK DISTRICT MEDICAL SOCIETY. CENSORS' EXAMINATION.—The Censors of Suffolk District will meet to examine candidates for admission to the Massachusetts Medical Society at the Boston Medical Library on Thursday, May 10, 1917, at 4 P.M. Candidates, who must be residents of Suffolk District or non-residents of Massachusetts, should make personal application to the secretary, and present evidence of their graduation from a recognized medical school at least three days before the examination.

For further particulars apply, between 4 and 5 P.M. (except Saturdays and Sundays), to

DAVID CHEEVER, M.D., *Secretary.*
355 Marlborough Street, Boston.

RECENT DEATHS.

EDWARD TOBEY TUCKER, M.D., a retired Fellow of the Massachusetts Medical Society, died at his home in New Bedford, April 10, 1917. He was born in that city Sept. 29, 1849, was a graduate of Brown University, 1871, and Harvard Medical School, 1874.

GEORGE H. CODDING, M.D., of Dover Plains, N. Y., who died on March 6, was born in Great Barrington, Mass., 63 years ago. He was graduated from the Medical College of New York, and had lived and practised at Amenia, N. Y., until about fifteen months ago, when his health failed. He is survived by his widow and one son.

GUSTAVUS CLARK KILGORE, M.D., who died very suddenly at his home on Primrose Hill, Belfast, Me., on March 29, was born in Smithfield, Me., in 1850. He received his degree of Doctor of Medicine at the University of Vermont in 1880. He is survived by his wife.